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NETWORK WORLD

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

LAN SECURITY

Novell, partners to steel-encase LANs

BY CHRISTINE BURNS AND
ELLEN MESSMER

New York

Novell, Inc. and a host of supporting vendors will announce here this week plans to create highly secure LAN systems, products that will be submitted to the Department of Defense for certification under its trusted computer guidelines.

Under what the vendors are calling the Trusted Network Computing Environment, Novell and its partners intend to submit their wares to the Defense Department's National Computer Security Center (NCSC) run by the National Security Agency (NSA).

The vendors will also work to create network application program interfaces and definitions of trusted objects for security applications.

A certification rating from the NCSC would help the vendors' prospects in the federal market, but in the announcement this week in New York, Novell is expected to emphasize the appeal of such an evaluation to business users, as well.

"We'll be working with the NCSC," said a Novell spokesman. "What we're announcing

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Call is sounded for calendar standards

BY BOB BROWN

Looking to head off an API war in the group calendar/scheduler market, a key E-mail industry association last week took the first steps toward establishing some common standards.

The X.400 Application Program Interface Association (XAPIA) decided it will host an open summit at the INTEROP 93 Fall conference in San Francisco next month to gauge industry interest in establishing common calendaring application program interfaces. Such APIs would likely let different vendors' calendaring systems interoperate and allow applications to work with multiple calendaring systems.

Several separate calendaring API efforts are already under way and could wind up creating confusion among users and vendors, said Roger Mizumori, manager of messaging services planning at Boeing Computer Services in Bellevue, Wash. Mizumori requested that

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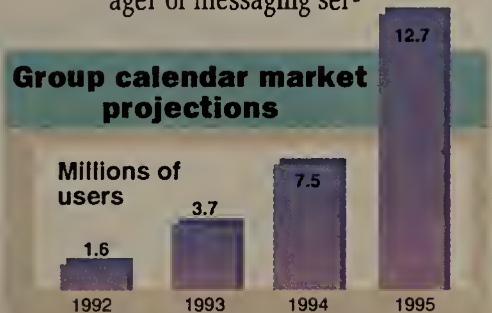

SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.
GRAPHIC BY TERRI MITCHELL

IBM readies ATM barrage

Includes backbone and LAN hub switches.

BY MICHAEL COONEY
AND SKIP MACASKILL

New York

IBM Tuesday will bring high-speed networks of the future closer to reality by announcing its first Asynchronous Transfer Mode (ATM) products.

The company confirmed that it plans to offer a variety of ATM equipment, including a backbone switch, a local-area network switching hub and ATM interfaces for its front-end processors, minicomputers, cluster controllers, personal computers and the RISC System/6000.

Sources said the company will also offer an ATM interface for its 6611 router and announce that Advantis, the firm's majority-owned value-added network service provider, will roll out ATM services.

The new backbone switch will be a bandwidth management system that combines the functionality of a fast packet switch and a cell-relay switch. Developed at IBM's research facility in La Gaude, France, the switch, dubbed Autobahn, borrows from technology developed in two IBM projects, Paris and Planet.

The Paris switch, based on the RS/6000, utilizes fast packet technology to support integrated data, voice and video at Synchronous Optical Network Optical Carrier-12 speeds of 622M bit/sec.

The Planet technology, which IBM codeveloped with BellSouth Corp., involved the development of a switch with a proprietary cell-relay scheme that can handle variable- and fixed-length cells at gigabit speeds.

Autobahn, which will have a total capacity of about 6G bit/sec, is being positioned as a premises device and is expected to be available in 12 to 18 months, according to sources.

"This switch will offer users a lot of flexibility in that it will be able to handle variable-length cells," one source said. That will enable it to support ATM's 53-

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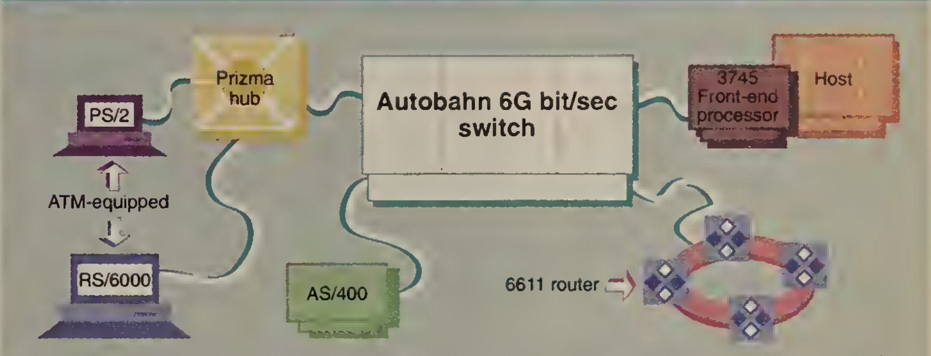
IBM ATM futures



IBM will introduce a variety of products Tuesday, including a new switch, hub and adapter cards that will let users build ATM-based networks capable of handling multimedia, voice and data applications.

ATM = Asynchronous Transfer Mode

GRAPHIC BY TERRI MITCHELL

SOURCE: *NETWORK WORLD*

800 PORTABILITY

Users ready for a Fresh Look

BY BOB WALLACE

Washington, D.C.

Though only a few users have jumped ship to date under Fresh Look, sources estimate that a substantial number of AT&T's custom network users are shopping around for a better deal.

Fresh Look is a Federal Communications Commission-mandated period during which AT&T Tariff 12 and Tariff 16 customers, as well as some companies with combined 800 and Software-Defined Network (SDN) service, can terminate their network deals without penalty to take advantage of competition in the 800 market. Fresh Look began with the advent of 800 portability on May 1 and ends July 29.

While AT&T is not saying how many customers are looking to change carriers during Fresh Look, attorneys who work with custom network users and AT&T's rivals say the activity has been brisk. Users are taking the opportunity to examine MCI Communications Corp. and Sprint Corp. proposals and to win concessions from AT&T, including lower prices.

Attorney Hank Levine, an experienced custom network negotiator with

See **Fresh**, *page 44*

Middleware helps firm distribute applications

BY WAYNE ECKERSON

Portland, Maine

Unum Corp. is proving that you don't have to throw away the mainframe when moving to distributed computing.

The $2.5 billion provider of disability insurance is rolling out a message-based communications infrastructure that will let workers access data or programs almost anywhere on the firm's global network.

Dubbed the Unum Communications System (UCS), the infrastructure will support transaction processing applications that run on IBM mainframes here and can be accessed by workers using DOS, Windows and OS/2 workstations on remote local-area networks across the enterprise.

"UCS will allow any process on any platform to communicate seamlessly regardless of underlying communications protocols," said Jerry King, director of planning and architecture at Unum here.

UCS consists of a high-level application program interface (API) and message-oriented middleware from PeerLogic, Inc. that resides on network nodes. The UCS API shields Unum programmers from having to write communications code to support distributed applications, and it protects Unum from having to rewrite its applications should PeerLogic, a small start-up, go out of business.

PeerLogic's Pipes Platform

See **Middleware**, *page 45*

NEWSPAPER

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PAGE TWO

Briefs

AT&T fiddles with pricing. AT&T has restructured pricing on its Accunet digital data local channel access service. The restructuring compresses the service's access rates into two basic bands and provides a uniform rate structure for all single-channel access services. Because rates are based on geography and circuit length, AT&T said specific customer prices could go up or down, but promised average costs will not change by more than 2%.

David Systems joins RND in hub/router project. David Systems, Inc. and RAD Network Devices (RND) last week announced a joint development alliance whereby RND's OpenGate multiprotocol routers and bridges will be integrated with David Systems' intelligent stackable work group hubs. The products are scheduled for delivery in early 1994.

AT&T airs calling card plan. As expected, AT&T last week announced AT&T Card Protect service, which shields users from losses due to calls charged to lost or stolen AT&T corporate calling cards. The carrier also introduced a Service Value plan, which enables corporate calling card users to save as much as 34% off AT&T's basic rates for interstate calling card calls.

TI and Covia partner. Texas Instruments, Inc. last week announced it will integrate its Information Engineering Facility (IEF) computer-aided software engineering tool with message-oriented middleware from Covia Technologies, Inc. The deal follows a similar arrangement TI recently made with middleware vendor, PeerLogic, Inc. The combination of IEF and Covia's Communications Integrator will enable users to rapidly design distributed applications that work across heterogeneous network and computing platforms.

Crosscomm taps Eicon for X.25. CrossComm Corp. last week announced it will incorporate Eicon Technology Corp.'s X.25 intelligent communications board and software into its ILAN router. The Eicon technology will be built into the ILAN's existing X.25 wide-area network module, enabling the router to handle X.25 traffic more efficiently by offloading X.25 protocol processing to the Eicon board from the router's CPU.

Net support group adds members. The Distributed Support Information Standards group, an alliance looking to define service and support information standards for multivendor networks, has added five new members: Proteon, Inc., Tandem Computers, Inc., Unisys Corp., Landmark Systems and October Technologies, Inc. The additions bring total membership to 15 companies, including Digital Equipment Corp., Hewlett-Packard Co., IBM and Microsoft Corp. The group also released specifications for information that can be used to facilitate service and support of multivendor networks. The specifications are available in hard copy by calling (414) 253-3259 or electronically via the Internet at gatekeeper.dec.com:/pub/forums/dsis.

Inter-LATA Multirate ISDN trial planned. WilTel, Nynex Corp., Ameritech and Northern Telecom, Inc. last week outlined plans for what they say is the first inter-local access and transport area trial of Multirate ISDN, a technology that enables users with Integrated Services Digital Network Primary Rate Interfaces to establish switched digital links in 64K bit/sec increments to 1.536M bit/sec. The carriers will use Northen Telecom switches running a common software load to establish a link between sites in Chicago and New York. After the trial, scheduled for the fourth quarter, the carriers will decide whether to offer the service.

Contacts

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Network HELP desk

Network World tracks down answers to your questions regarding products, services, technologies or disputes with vendors. Please submit questions to Susan Collins at (800) 622-1108, via fax at (508) 820-3467 or via the Internet at scollins@world.std.com.

I want to get the materials necessary to study for the core Certified NetWare Engineer (CNE) exams. My local Novell, Inc. authorized training center wants to charge me half the price of the course just for the materials. Is there a way I can get these materials more affordably?

Peter Morrissey, Rochester, N.Y.

One option you may want to investigate is the Novell User Forum (NOVUSER) on CompuServe. According to Mike Cronquist, supervisor of electronic services for NETWIRE, NOVUSER has a section called CLASSIFIEDS that lists messages from people interested in buying and selling NetWare-related products, including CNE course materials.

Another forum on CompuServe you may want to investigate is Novell Forum C (NOVC). Section 12 of NOVC is specifically for CNEs and may have messages from people selling CNE materials. You may also leave a message in Section 12 saying you're looking to buy these materials.

In addition, Mark Brooks, president of NetWare Users International (NUI), notes that many local NUI chapters have organized CNE study groups as a low-cost way of preparing for CNE exams. Members often trade materials with one another.

To find out how to contact your local NUI chapter, call (800) 228-4684.

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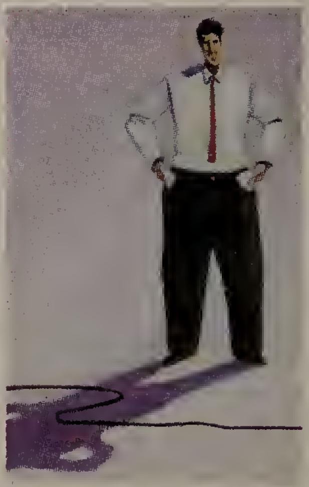

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NCR extends electronic forms across WANs

Firm integrates FormFlow with AT&T Mail.

BY WAYNE ECKERSON

Dayton, Ohio

NCR Corp. last week announced a Windows-based forms routing software package that allows desktop and mobile workers to transfer electronic forms across AT&T EasyLink Service's global messaging network.

Called Liberty, the package is based on forms routing technology from Delrina Corp. and consists of two modules: a high-level forms designer, which allows users to build electronic forms such as expense reports and purchase requisitions; and run-time software, which permits users to fill and route forms electronically.

Both the design and run-time modules run on Microsoft Corp. Windows-based personal computers. NCR plans to release run-time modules on DOS and Apple Computer, Inc. Macintosh platforms later this year.

Liberty contains embedded communications software that allows users to ship electronic forms across the AT&T EasyLink public messaging network. Liberty also enables users to ship forms across local-area networks using common LAN-based electronic mail packages, such Lotus Development Corp.'s cc:Mail and Microsoft's Mail.

According to NCR officials, Liberty can be used by a travelling salesperson, for example, to execute a number of tasks from a laptop computer without leaving a customer's office. These include checking product inventory, preparing and printing a proposal, determine pricing and entering a customer order.

Each task is executed by filling out an electronic Liberty form, which the salesperson then uploads across EasyLink to the home office. There it is processed and a response is returned via another Liberty form, if necessary.

OTHER FUNCTIONS

Liberty can also be used to design forms that will continue to be distributed in paper format, NCR officials said.

In addition, NCR has integrated Liberty with its recently announced, high-end work flow tool called ProcessIt, which runs on DOS and Windows clients, NCR 3000 Unix servers and Microsoft LAN Manager LANs (*NW,* May 31, page 30). The combination of Liberty and ProcessIt provides companies with a comprehensive work flow tool set that integrates forms routing within complex, transaction-based business processes, NCR officials said.

To demonstrate the value of Liberty, NCR is deploying the product for use by more than 300 of its salespeople. The firm estimates that it will receive a 28% annual return on investment and save more than $356,000 annually after the first year of deployment, said Randy Popson, manager of NCR's Electronic Forms Group.

EDI FUTURE

Popson said NCR is contemplating integrating Liberty with electronic data interchange to support intercompany communications but would not give details. EDI allows companies to exchange standards-based electronic forms, such as purchase orders and shipping notices. Presumably, users could fill out Liberty forms that would be programmed to lift out certain information and package it into an EDI format for transmission to the company's trading partner.

For example, a salesman could use Liberty to enter a customer order, which would then trigger a manufacturing work order to produce the desired product and send an EDI message to the customer detailing when to expect shipment.

The Liberty design module will cost $1,000 per copy, and the run-time module will cost $199 per user. The products will be available next month.

©NCR: 513 439-8498.

WORMS AT APPLE

Apple cuts jobs, rethinks Enterprise Systems Division

BY FREDRIC PAUL

Cupertino, Calif.

The other shoe is dropping at Apple Computer, Inc.

Hard on the heels of John Sculley's handing over CEO duties to Michael Spindler — Sculley remains chairman of the board — and predictions of lower earnings stemming from bitter price wars, Apple last week announced it would eliminate 2,500 jobs and initiate a "broad reengineering of the company" over the next 12 months.

That reengineering is expected to mean changes at formerly sacrosanct operations, including cuts in research and development. It will also involve "organizational changes designed to allow the company to compete more effectively," the company stated.

These changes could include the reduction or elimination of the Enterprise Systems Division (ESD), which is charged with developing and marketing servers and network products to large corporate customers. While Apple will continue to sell its network products, they will be administered by other groups within the company.

"The word is that ESD is going to get nuked," said Brent Williams, a director at International Data Corp. (IDC) in Mountain View, Calif. Williams said such a move makes short-term financial sense because ESD has never made a solid contribution to earnings, "but it will cost them dearly in credibility" among corporate customers.

Chris LeTocq, a service director for InfoCorp in Santa Clara, Calif., agreed that breaking up ESD would be a mistake. "I think it would be unfortunate if Apple's high-end efforts were defocused," he said.

"I think it would be unfortunate if Apple's high-end efforts were defocused."

"Persuading corporations that your commitment to them is real requires a dedicated organization and a commitment to that organization," LeTocq said. If you take that away, he said, corporations may begin to believe competitors' charges that Apple is chiefly concerned with the educational and home computing markets.

For that reason, "I would be surprised if [ESD] got pared back substantially" instead of done away with completely, said Bill Higgs, veteran Apple watcher and vice president of marketing for Multidata Corp. in Campbell, Calif.

The company needs to offer corporate customers a full solution, Higgs said. "I think Apple understands that." He predicted cuts in visionary, long-range projects rather than in bread-and-butter products, such as servers and networking devices.

Sources close to Apple said those very issues are still being debated within the company. While some changes at ESD are inevitable, the company is still discussing its various options. "Nothing is definitive yet," said one source.

"I suspect they have no idea what they are going to do," Williams said, adding that the company is likely to move quickly once final decisions are made. "Companies don't sit on these things for months once they make up their mind," he said.

As for the layoffs, which amount to 16% of the company's 16,000 employees, Apple would not specify what groups were most at risk. But the company said that most of the layoffs — the largest group in the company's history — would happen this month, possible as early as this week.

Apple will take an as-yet unspecified restructuring charge to account for the layoffs in its third fiscal quarter, which ended June 25, 1995.

Estimates reportedly range from $250 million to $300 million.

With intense price competition from personal computer makers sapping margins and profits on Apple's mainstay Macintosh products and new technologies such as the Newton personal digital assistant still months away from introduction, the layoffs were needed to "accelerate revenue, unit and earnings growth," the company stated.

Wall Street has long called for Apple to address its high costs, and observers had been predicting the cuts since the no-nonsense Spindler took over the chief executive officer from Sculley last month.

"In my opinion," said IDC's Williams, "Apple has been overstaffed for a long time."

MCI must file full tariffs, court says

BY BILL BURCH

Washington, D.C.

AT&T last week won an order from a federal judge requiring MCI Communications Corp. to fully disclose pricing for its interstate services, a decision that could give users new bargaining leverage in negotiating custom network contracts.

In his ruling on an AT&T request for an injunction against MCI, U.S. District Court Judge Stanley Harris told MCI it would have to "promptly" file full tariffs for all its services, as opposed to the price ranges the company has been filing to date. Jim Lewis, MCI's vice president of regulatory and public policy, promised that his company would file the new tariffs "in the near future."

Although the court order specifically mentions only MCI, it may establish a precedent that would force carriers such as Sprint Corp. and WilTel to file more complete tariffs, as well. AT&T currently has lawsuits filed aginst both carriers.

Joseph Nacchio, president of AT&T Business Communications Services, hailed the decision as a victory for consumers. "Customers will want to know what better deals they could have gotten," he said.

Just how much leverage users get will depend on how much information the new tariffs disclose.

While AT&T portrayed the decision as giving users fuller access to pricing data, MCI claimed the decision would have no effect on how the company operates. Nonetheless, with the added information, it stands to reason customers will be able to compare rates better and press MCI for improved deals.

Just how much leverage users get will depend on how much information the new tariffs disclose, according to Brian Moir, Washington counsel for the International Communications Association, a user group for large users of telecommunications services.

MCI might test the breadth of the court order by filing stripped-down tariffs, Moir said. While such tariffs might keep some customers happy by concealing proprietary network information, others may want fuller access to tariffs for the sake of comparison shopping.

AT&T has been pressing for four years for a ruling that would force its competitors to file the same detailed tariff data that AT&T was required to provide.

Until last fall, the Federal Communications Commission had a forbearance policy that allowed nondominant carriers to file tariffs listing only a range of prices. In November, a federal appeals court overturned that policy, citing the 1934 Communications Act's requirement of full tariffs for all common carrier services.

AT&T filed lawsuits in February against MCI, Sprint and WilTel alleging damages suffered due to the lack of complete tariff filings. In the suit, AT&T claimed damages for the cost of developing computer pricing models it was forced to build in order to help it bid against MCI, which had access to full AT&T tariffs. AT&T also wants compensation for the competitive disadvantage it suffered as a result of not knowing details of MCI's pricing. There has been no ruling on those claims to date, and MCI's Lewis said he is confident AT&T will not be able to document damages.

In the wake of the November court decision, the FCC filed a notice of proposed rule making that takes up the subject of ranges of tariffs. Comments and replies have been filed, and action is pending on the rule making.

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Circle Reader Service #13

Vendor steps up effort to ban paper

BY BOB BROWN

Park City, Utah

Park City Group, formerly Fields Software Group, Inc., this week will reintroduce itself and its software — a set of client/server applications that automate paper-based work processes.

FIELDS

Park City's PaperLess Management System consists of modular, customizable client/server applications that employ electronic mail, work flow and forms technologies to help companies replace inefficient paper-based systems with more flexible computer-based ones.

Until now, the company has sold the product exclusively within the retail industry, but it is expected to announce plans to broaden its sales focus to financial, health care and government users.

Park City will also announce joint marketing agreements with IBM and Telxon Corp. IBM has established domestic and international services groups dedicated to marketing the PaperLess Management System and providing accompanying systems integration services.

A new version, Version 2.1, of the product is due out by the end of the summer, but the company will not be talking about that much at its announcement next week. Park City primarily will be pushing the concept of paperless management and how it can help users in a variety of industries.

Randall Fields, chairman and chief executive officer of Park City, said the PaperLess Management System is designed to make companies more productive and efficient by getting rid of paper-based management systems in favor of electronic ones. Electronic management systems should give end users enterprisewide access to data and enable them to reuse it in multiple forms, he added.

One retailer reengineered its hiring process with the PaperLess Management System by eliminating 26 forms that needed to be filled out by prospective employees and processed by the company. The hiring cycle was cut from weeks to days — an improvement that, among other things, cuts the odds of a good candidate taking a rival company's offer.

Park City has its roots at Mrs. Fields Cookies, where Fields was CEO and Paul Quinn, president of Park City, was MIS director. Fields and Quinn then envisioned an application development and management system that could be used first by the snack retailer and then turned into a commercial product for other retailers.

The resulting product, Retail Operations Intelligence, has been in use by large retailers and supermarkets since its 1990 launching. Customers of the product, now called the PaperLess Management System, include Burger King Corp., Melville Corp. and Wawa, Inc., a convenience store chain.

The PaperLess Management System is sold in modules that include human resources, labor management, executive information systems, inventory and production management, and asset management and accounting. There is also a module that includes the base messaging and FormMail technologies on which the other modules rely. Many of the modules have expert systems technology built into them to help companies distribute expertise throughout their ranks.

The software can be customized by each company to meet its needs using tools provided by Park City, Quinn said. Park City has built the necessary application program interfaces into its software to make it independent of operating system, database and network implementations, he said.

The PaperLess Management System is sold in modules that include human resouces, labor management, executive information systems and inventory.

Fields said Park City's offerings are somewhat similar to those of PeopleSoft, Inc., which sells client/server applications. However, he said, Park City sells a wider variety of applications.

Bill Bluestein, an analyst at Forrester Research, Inc., a Cambridge, Mass. market research firm, said Park City's offerings will be welcomed by users in markets other than retail.

"Many [users] don't want to have to bear the expense of having to hire, train and retrain their own custom development shops," Bluestein said. "I think most companies would rather buy [client/server applications] off the shelf.

"There is really a gaping void in the market for packaged client/server applications."

©Park City Group: (801) 645-2105.

Get in touch with the R.A.F.

The Reader Advocacy Force (R.A.F.) tackles tough issues facing readers — we want to hear about problems you've encountered with products, service and support, or interoperability of equipment, as well as any other concerns. We'll investigate your tip, and if we write about it, we'll send you a T-shirt emblazoned with the R.A.F. logo. Contact us via the R.A.F. Hotline at (800) 622-1108, Ext. 487 or on the Internet at nwraf@world.std.com or through the R.A.F. Forum on our Bulletin Board System (BBS). For BBS instructions, see page 2.

Commercial Internet provider begins installing ATM net

PSI plans to offer TCP/IP services over T-3 ATM net.

BY ELLEN MESSMER

Washington, D.C.

Commercial Internet provider Performance Systems International, Inc. (PSI) this month will begin upgrading its network with Asynchronous Transfer Mode (ATM) equipment, which will enable it to handle multimedia and videoconferencing.

PSI, which provides commercial Internet services throughout most of the U.S., will install this summer eight Cascade Communications, Inc. Cascade 9000 ATM switches in cities between New York and Washington, D.C. The company intends to offer Transmission Control Protocol/Internet Protocol data transport services, including packet-video service, over the T-3 speed ATM network.

The new ATM net will initially parallel PSI's current T-1 net throughout that heavily used urban stretch, said Martin Schoppstall, vice president and chief technical officer at the Herndon, Va.-based company. He said the Internet has become a popular medium for messaging and file transfer among companies and pointed out that Hewlett-Packard Co., Mentor Graphics and Wal-Mart, Inc. use PSINet for business communications.

PSI, which provides service for nearly one-quarter of all organizations on the Internet, has about 4,000 corporate and academic customers and is adding about 300 more per month.

Schoppstall said the ATM switching systems will be integrated with the 30 frame relay switches it now uses to handle TCP/IP data. PSI expects to field a total of 80 frame relay switches by the end of the year.

In addition, the company expects T-3 ATM to accommodate the bandwidth demands of multimedia and packet-switched videoconferencing.

"Multimedia messaging applications have greater bandwidth requirements that have stressed the Internet's T-1 infrastructure in the past," Schoppstall said. "It may take one minute to send a 1M byte file over a T-1 line; while using T-3, that file can be sent in less than two seconds.

PSI is also beta-testing TCP/IP packet videoconferencing with about 30 customers.

Since there is not yet an Internet Engineering Task Force standard for TCP/IP over ATM, PSI will simply map frame relay to ATM, Schoppstall said.

PSI at a glance

Headquarters: Herndon, Va.
Founded: 1989 by William Schrader, president and chief executive officer, and Martin Schoffstall, vice president and chief technical officer
Primary business: National provider of commercial Internet access
Number of customers: 4,000 organizations, primarily corporations
Annual revenues: Approximately $20 million
Number of employees: 70

SOURCE: PERFORMANCE SYSTEMS INTERNATIONAL, INC., HERNDON, VA.

Borland buys into Lotus Notes

BY WAYNE ECKERSON

Setting aside animosities borne out of an intense rivalry, Borland International, Inc. and Lotus Development Corp. last week announced they would work together to integrate Borland's Quattro Pro spreadsheet and Lotus' Notes work group computing software.

Lotus has already shipped a Notes 3.0 software developers' kit and Notes applications program interface to Borland, which plans to add support for Notes in an unspecified future release of Quattro Pro.

Borland officials said the move is a response to Quattro Pro customers that want to be able to embed Quattro Pro spreadsheets in Notes databases.

This will enable users to view and edit Quattro Pro spreadsheets within Lotus Notes documents and databases.

As an object within a Notes database, the Quattro Pro spreadsheet will be able to take advantage of Notes services, such as replication, security, and object linking and embedding functions.

Borland is the last major personal computer software vendor to sign a technology-sharing agreement with Lotus for Notes-enabling desktop applications. Several large companies, including Adobe Systems, Inc., Microsoft Corp. and WordPerfect Corp., as well as about 250 smaller companies, have already signed similar agreements.

"The deal represents another log in the growing body of evidence that Notes is the de facto industry standard for work group computing," said Jeffrey Papows, vice president of the Lotus Notes' products division.

©Lotus: (617) 577 8500; Borland: (408) 438-8400.

Simpact ships programmable comm. gateway

BY JIM DUFFY

San Diego

Simpact Associates, Inc. is now shipping Freeway, a gateway that connects TCP/IP local-area networks to host applications over synchronous wide-area links.

Freeway is a VMEbus system that runs a Portable Operating System Interface-compliant operating system and is powered by Motorola, Inc.'s 68040 microprocessor.

Freeway sports one Ethernet port and as many as 64 synchronous wide-area ports, with link speeds of 64K bit/sec each.

The server's internal bus runs at 40M byte/sec. Freeway supports X.25, bisynchronous and many specialized financial and defense industry protocols, and attaches to front-end processors, terminal controllers and packet switches at the host site.

Freeway is designed to off-load communications protocol processing from host computers.

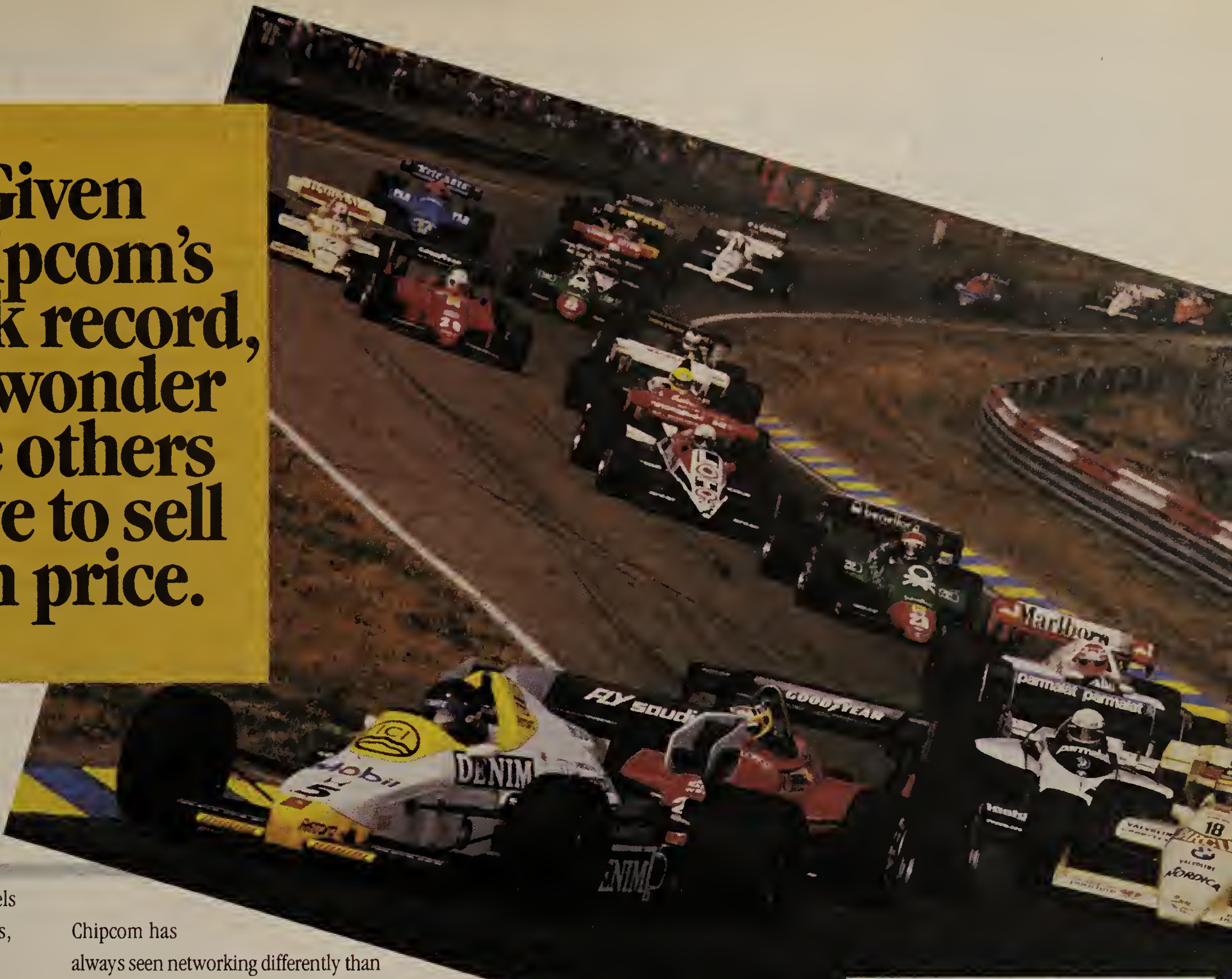
It performs protocol translation between Transmission Control Protocol/Internet Protocol and the protocols the host is linking to.

Freeway is designed to off-load communications protocol processing from host computers, which frees up more host processing cycles for applications.

In the financial, utilities and telecommunications industries, companies are using their applications and database processors to also support communications

See Simpact, *page* 46

Given Chipcom's track record, no wonder the others have to sell on price.



OCTOBER 18, 1988
We created the first truly fault-tolerant hub. And we've been building high levels of fault tolerance into all our new hubs, modules and transceivers ever since. Because when you're talking about big mission-critical networking, any downtime is too much downtime.

JANUARY 29, 1990
We were the first to introduce a multi-protocol, multi-network intelligent switching hub. Suddenly, it became possible to run up to 3 Ethernet, 7 Token Rings or 4 FDDI networks, software configurable, in a single hub.

APRIL 29, 1991
We were the first to put Port Switching into an intelligent hub. With it, you can do moves, adds and changes, within or across networks or segments with a couple of clicks of a mouse. Without it, you get to make trips to the wiring closet and move cables. A lot of trips.

MAY 13, 1991
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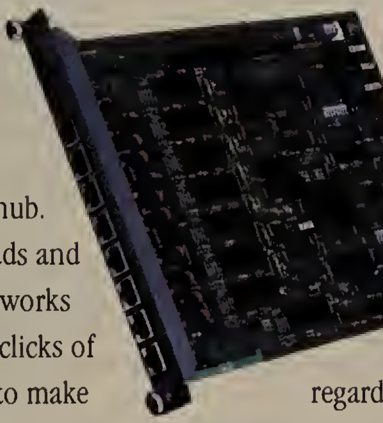

Chipcom has always seen networking differently than its competitors. Which, given the difference in our backgrounds, isn't surprising.

Instead of building products aimed at departmental LANs, Chipcom has always designed and engineered its products for networks of thousands of nodes. So it's only natural that while others see networking from the bottom up, we view it from the top down. While they think in terms of an average network life of three years, we see a corporate asset good for ten years or more. While others regard some downtime as acceptable, we find it unthinkable.

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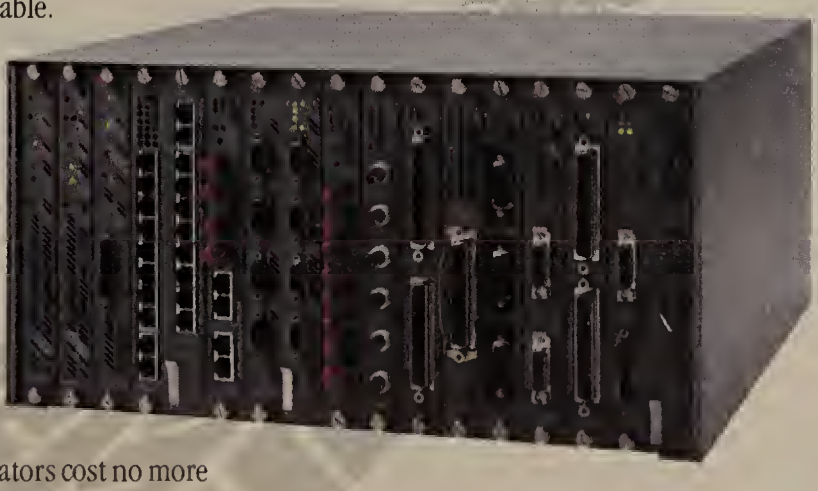
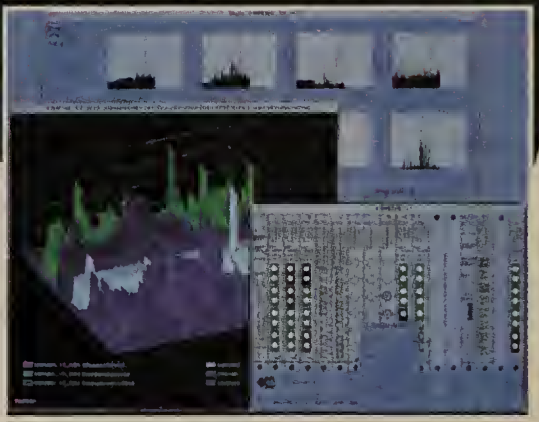
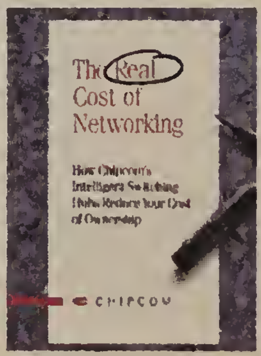
And only the Chipcom architecture offers the combination of engineered-in reliability, the highest degree of fault tolerance, TriChannel™ flexibility, Port Switching and ONdemand™ Network Control System that results in huge savings over the life of your network.

For example, Chipcom's ability to eliminate closet-level moves, adds and changes alone can save you enough money to repay the entire cost of the network in just three years. Want to make us prove it? Call **1-800-228-9930**. Ask for your free copy of *"The Real Cost of Networking,"* the name of a Chipcom VAR near you, or to speak to a Chipcom representative.

Or what the heck, ask for all three.







CHIPCOM

Circle Reader Service #5

GSA* GSOOK90AGS5185

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Sybase preps new development tool

BY BOB BROWN

Emeryville, Calif.

Sybase, Inc. this week will announce GainMomentum 2.0, an object-oriented, multimedia application development tool positioned as the cornerstone of its client/server development software strategy.

The company is making a big push in the increasingly strategic tools market to complement its already strong database business. It plans to provide details on its overall tool strategy in September (*NW*, May 24, page 29).

Sybase's push into the tools market largely began last fall when the company bought Gain Technology, which created GainMomentum, a development tool for building multimedia applications. Sybase is extending the software, which has been used mostly for building stand-alone applications, for client/server applications.

The most significant new feature in GainMomentum 2.0 is its access to Sybase, Inc. SQL Server and Oracle Corp. Oracle Server databases without requiring the programmer to do any coding. This makes it easier for developers to design applications for accessing data across a network. The new version of the software also has code-free access to other databases via a direct connection to Sybase's gateway offerings.

Previously, developers using GainMomentum needed to write extensions through sockets to build applications with database access.

GainMomentum 2.0 development tool features

- ✓ Access to Sybase, Inc. SQL Server and Oracle Corp. Oracle Server.
- ✓ Access to assorted SQL and nonrelational databases via Sybase gateways.
- ✓ Dynamical linking to C and C++ libraries.
- ✓ On-line reference and training.

"Opening up the product to real-world SQL-based databases definitely brings it more into the mainstream commercial applications market," said Frank Strelau, Sybase's director of product marketing for tools.

The software will enable users to build decision support and other applications that require accessing data in a timely manner from multiple data sources across a net, he said.

Jessica Jennings, director of training at Halliburton Energy Services, Inc., an oil exploration company in Houston, said she is looking forward to the GainMomentum 2.0 enhancements so the company can network-enable its applications. Currently, Halliburton uses GainMomentum to build stand-alone applications designed to give end users on-line software help.

"If we can distribute our applications [using the GainMomentum software], we can maximize our training resources," she said.

Another feature of GainMomentum 2.0 is a set of extensions to the software's 4GL-based scripting language that enables dynamical linking at run-time to external C and C++ libraries.

GainMomentum 2.0 also features a built-in training system for showing developers how to use the software.

GainMomentum 2.0 is in beta on Hewlett-Packard Co., IBM and Sun Microsystems, Inc. workstation platforms and will be shipping by September.

The software starts at $10,000 for a developer's license and $795 per run-time license.

Sybase plans to port GainMomentum 2.0 to platforms from Digital Equipment Corp., Microsoft Corp. and Silicon Graphics, Inc., as well, but did not provide specifics on availability.

©Sybase: (510) 596-3500.

HP users form new OpenView Forum group

BY JIM DUFFY

Boulder, Colo.

Four of the largest licensees of Hewlett-Packard Co.'s OpenView network management system last week said they have formed a user group to facilitate open dialogue with the vendor.

Duke Power Co., GTE Government Systems Corp., Martin Marietta Corp. and US West Advanced Technologies, Inc. formed the OpenView Forum after about two months of planning, said forum President Rick Sturm. Sturm is a member of the technical staff at US West Advanced Technologies, here.

The companies formed the group to enable OpenView users and application developers to share ideas, influence product direction and learn about planned product enhancements. Sturm said interaction with HP and third-party developers will help users plan network management strategies.

Likewise, HP and developers will benefit by knowing what customers need, he said. "We can all gain — users and vendors — by getting together and sharing information," Sturm said.

The other officers of the OpenView Forum are Vice President Frank Belland, senior communications consultant at Martin Marietta; Secretary Cathy Lytle, member of the technical staff at GTE Government Systems; and Treasurer Paul Edmunds, senior information systems analyst at Duke Power.

Among the issues the group will address is the integration of multivendor network and systems management products, Sturm said. The group will look to "drive definitions" for different levels of integration, such as application-level integration and database integration, he said.

The OpenView Forum will also prioritize requirements for extensions to the OpenView product line.

The group's annual membership fee is $300. An unlimited number of people from any company can attend meetings, but only one representative per company can vote concerning product direction suggestions and other issues.

The group will look to "drive definitions" for different levels of integration, such as application-level integration and database integration, said Rick Sturm.

The OpenView Forum will hold its first conference in Dallas Nov. 1-3 at the Westin Hotel/Galleria. The cost of the conference is $575.

Forum conferences will include presentations by HP and other vendors that develop products for OpenView. The forum may also invite industry leaders and observers to deliver presentations at future conferences.

Conferences will also include technology forums and demonstrations, and discussions on multivendor networking and network management trends.

OpenView Forum will also publish a newsletter and offer electronic bulletin board services, including tips on network management troubleshooting.

BellSouth opens net for enhanced services

BY BILL BURCH

Washington, D.C.

BellSouth Corp. last week asked the Federal Communications Commission for permission to give outsiders access to its advanced intelligent network, a move that could pave the way for a new breed of services developed by carriers and users alike.

Under BellSouth's plan, third-party service providers and users could develop services such as voice-activated dialing, the audio announcement of incoming calls and the audio presentation of electronic mail messages.

"Opening this storehouse of telecommunications capabilities reflects our strong desire to stimulate the broader consumer and business markets," said BellSouth President Duane Ackerman.

BellSouth's plan is similar to that of New York Telephone Co. In April, New York Telephone announced a network management system that allows private-line customers to access the network directly to add circuits, increase bandwidth and reroute circuits for disaster recovery.

That plan resembles BellSouth's in offering direct user access to the network, but BellSouth will be alone in providing access that allows a company to develop its own advanced features.

BellSouth's advanced intelligent network provides enhanced telephone services through service control points (SCP) and service nodes. SCPs are databases that provide routing information to the telephone company's switches. At the central office level, service nodes add in the ability to handle voice-related features such as voice mail.

BellSouth wants to open up its network in three stages. By 1995, the company plans to let users tie into its SCPs. Users will log on to the system using a personal computer and a BellSouth-provided software package with a graphical user interface.

At this stage, users could do their own programming for call screening, which, for example, will allow users to control dial-up access to a computer system. Users could also control call routing, which will let system managers perform functions such as rerouting calls to follow employees who split their time between two offices.

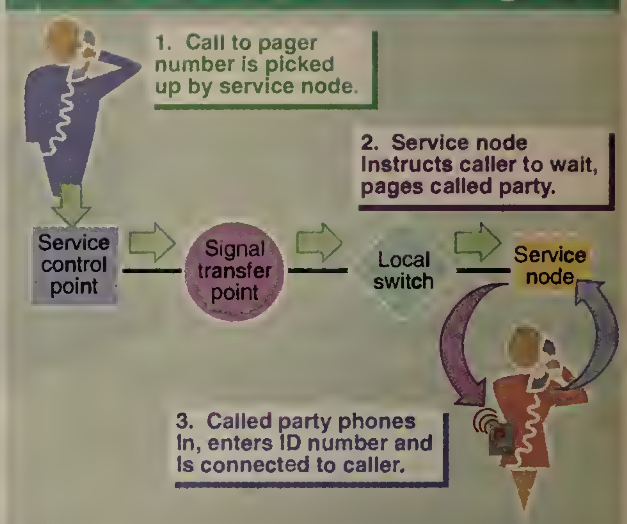
Third-party service providers, such as voice mail service bureaus, may want to wait for the second phase of BellSouth's networking plan, which is scheduled for implementation in 1996. At that point, the providers will be able to use a common channel signaling link to tie in their own service control points. Like the first phase, the second phase will be limited to routing functions, because SCPs cannot provide physical call connectivity.

The first real blossoming of new services could happen after 1996 in the plan's third phase. At that point, users will be able to reach BellSouth service nodes via an Integrated Services Digital Network line. Alternatively, users could tie their own service nodes into the net.

Using either their own premises-based service node or one at BellSouth, customers could employ a range of features.

Text-to-speech synthesis will support the audio presentation of E-mail. Voice-activated dialing will let callers reach a coworker by merely speaking the coworker's name into the phone.

BellSouth adds network intelligence


1. Call to pager number is picked up by service node.
2. Service node instructs caller to wait, pages called party.
Service control point
Signal transfer point
Local switch
Service node
3. Called party phones in, enters ID number and is connected to caller.

GRAPHIC BY SUSAN SLATER

SOURCE: BELLSOUTH CORP., ATLANTA

A paging service could put a caller on hold, page a user, then connect the user to the incoming call (see graphic, this page).

BellSouth's plan will accomplish some goals of the telephone industry's Open Network Architecture (ONA), which was formed to offer third-party service providers with a consistent, nationwide set of interfaces to telephone company networks.

Work on ONA has been proceeding slowly through the Information Industry Liaison Committee of the Exchange Carriers Standards Association. If approved, the BellSouth plan would shunt wider network access around the committee's deliberations.

Dave Rendall, president of R.P. Teletrends, Inc. in Raleigh, N.C., said speeding up implementation of the ONA plan may be BellSouth's chief accomplishment.

Rendall, a former vice president of strategic planning at Northern Telecom, Inc., also noted that after 1996, decisions on whether to buy a service node or lease space on one from BellSouth will be made solely on the basis of cost and should help keep down prices for advanced services.

At that point, users must count on BellSouth pricing its Advanced Intelligent Network access based on the amortization of shared network resources, rather than viewing the services as a new profit center.

NETWORK WORLD

The Newsweekly of Enterprise Network Strategies

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Please Answer ALL Questions, Sign and Date the Form.

1 Industry: (check one only)

01. ☐ Manufacturers (other than Computer/Communications)
02. ☐ Finance/Banking
03. ☐ Insurance
04. ☐ Real Estate
05. ☐ Healthcare Services
06. ☐ Legal
07. ☐ Hospitality
08. ☐ Retail/Wholesale Trade/Business Services
09. ☐ Transportation
10. ☐ Utilities
11. ☐ Education
12. ☐ Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry)
13. ☐ Government, State/Local
14. ☐ Government, Federal
15. ☐ Military
16. ☐ Aerospace
17. ☐ Consultants (Independent)
18. ☐ Carriers
19. ☐ Interconnects
20. ☐ Manufacturers (Computer/Communications)
21. ☐ VAR/VAD/VAN/ Systems Houses
22. ☐ Distributors, Computer Related
23. ☐ Distributors, Communications Related
24. ☐ Other__________________

2 What is your job function? (check one only)

NETWORKING MANAGEMENT
1. ☐ Networking Mgmt.
2. ☐ LAN Mgmt.
3. ☐ Datacom/Telecom Mgmt.
4. ☐ Engineering Mgmt.

MIS MANAGEMENT
5. ☐ MIS, IS, IT Mgmt.
6. ☐ Engineering Mgmt.

CORPORATE MANAGEMENT
7. ☐ Corporate Mgmt. (CIO, CEO, Pres., VP, Dir., Mgr., Financial Mgmt.)
8. ☐ Consultant (Independent)
9. ☐ Other__________________

3 My responsibilities include: (check one only)

1. ☐ LANs/ Internetworking/ WANs
2. ☐ LANs/ Internetworking
3. ☐ LANs
4. ☐ WANs
5. ☐ None

4 What is the total number of sites for which you have purchase influence? (check one only)

1. ☐ 100+
2. ☐ 50 - 99
3. ☐ 20 - 49
4. ☐ 10 - 19
5. ☐ 2 - 9.
6. ☐ 1
7. ☐ None

5 What is your scope and involvement in purchasing decisions for network products & services for your enterprise?

A. Scope (check one only)
1. ☐ Corporatewide
2. ☐ Multienterprise (consultants)
3. ☐ Departmental

B. Involvement (check all that apply)
1. ☐ Recommend/Specify
2. ☐ Approve
3. ☐ Evaluate

4. ☐ None (A or B)

6 Check all that apply in Columns A and B:

A: I am involved in the purchase of the following products/services.
B: I plan to purchase the following products/services in the next year.

Involved A		Plan to Purchase B	LOCAL-AREA NETWORKS
☐	01.	☐	Local-Area Networks
☐	02.	☐	LAN Servers
☐	03.	☐	LAN Operating Systems Software
☐	04.	☐	Superservers
☐	05.	☐	Data Base Servers (Oracle, Sybase, etc).
☐	06.	☐	Terminal Servers
☐	07.	☐	LAN Services
☐	08.	☐	LAN Storage Devices (optical, tape, disk, etc,. including backup systems)
☐	09.	☐	Network Test Equipment
☐	10.	☐	Hubs
☐	11.	☐	Cables, Connectors, Baluns
☐	12.	☐	UPS
☐	13.	☐	Network Adapter Boards
☐	14.	☐	Peer-to-Peer LANs
☐	15.	☐	Wireless LANs
☐	16.	☐	SNMP Network Management
☐	17.	☐	ATM (Asynchronous Transfer Mode)
A		**B**	**INTERNETWORKING**
☐	18.	☐	Bridges
☐	19.	☐	Routers
☐	20.	☐	Gateways
☐	21.	☐	Bridge/Routers
☐	22.	☐	Hubs
☐	23.	☐	Intelligent Hubs
☐	24.	☐	Communications Servers
A		**B**	**COMPUTERS/PERIPHERALS**
☐	25.	☐	Micros/PCs
☐	26.	☐	Minis
☐	27.	☐	Mainframes
☐	28.	☐	Pen-Based
☐	29.	☐	Laptops
☐	30.	☐	Workstations
☐	31.	☐	Image Processing Workstations
☐	32.	☐	Front-End Processors
☐	33.	☐	Terminals
☐	34.	☐	Printers
☐	35.	☐	Cluster Controllers
☐	36.	☐	Fax Machines
☐	37.	☐	X-Terminals
A		**B**	**SOFTWARE/APPLICATIONS**
☐	38.	☐	Network Management
☐	39.	☐	Micro to Mainframe
☐	40.	☐	Security
☐	41.	☐	Communication/Terminal Emulation
☐	42.	☐	Word Processing
☐	43.	☐	Operating Systems
☐	44.	☐	Business Applications (Finance/Mfg/HR)
☐	45.	☐	Applications Development
☐	46.	☐	Data Base Management
☐	47.	☐	Spreadsheet
☐	48.	☐	Groupware
☐	49.	☐	EDI
☐	50.	☐	E-Mail
☐	51.	☐	Windows/Graphical User Interface
☐	52.	☐	4GL/Development
☐	53.	☐	Multimedia
☐	54.	☐	Graphics
☐	55.	☐	Utilities
A		**B**	**WIDE-AREA NETWORK EQUIPMENT/SERVICES**
☐	56.	☐	Modems (9.6K bps and over)
☐	57.	☐	Modems (under 9.6K bps)
☐	58.	☐	T-1
☐	59.	☐	T-3
☐	60.	☐	Fractional T-1
☐	61.	☐	Data Switches
☐	62.	☐	SMDS
☐	63.	☐	ATM (Asynchronous Transfer Mode)
☐	64.	☐	Matrix Switches
☐	65.	☐	Packet Switches
☐	66.	☐	Protocol Converters
☐	67.	☐	Diagnostic/Test Equipment
☐	68.	☐	DSU/CSUs
☐	69.	☐	Microwave
☐	70.	☐	Fax Boards/Modems
☐	71.	☐	VSAT
☐	72.	☐	Fiber Optic
☐	73.	☐	Satellite
☐	74.	☐	ISDN
☐	75.	☐	PBXs (over 1000 lines)
☐	76.	☐	PBXs (under 1000 lines)
☐	77.	☐	Automatic Call Distributors
☐	78.	☐	Voice Messaging Systems
☐	79.	☐	Videoconferencing Systems
☐	80.	☐	Voice Response/Processing
☐	81.	☐	Switched Voice
☐	82.	☐	Dedicated Leased Line
☐	83.	☐	Switched Data
☐	84.	☐	Centrex
☐	85.	☐	E-Mail/On-Line Information
☐	86.	☐	Image Processing
☐	87.	☐	Audio Teleconferencing
☐	88.	☐	Local Services
☐	89.	☐	WATS MTs
☐	90.	☐	International
☐	91.	☐	Virtual Networks
☐	92.	☐	Frame Relay
☐	93.	☐	Value Added Services
☐	XX	☐	None of the above (1-93)

7 What is the total number of A: LANs B: Workstations/Nodes in your entire organization?

	LANs A		Workstations/Nodes B
1.	☐	5,000+	☐
2.	☐	1,000 - 4,999	☐
3.	☐	100 - 999	☐
4.	☐	50 - 99	☐
5.	☐	10 - 49	☐
6.	☐	9 or Less	☐

8 Which of the following network platforms are currently installed/planned in the next year?

Present		Planned	NETWORK ARCHITECTURES
☐	01.	☐	SNA
☐	02.	☐	DECNET
☐	03.	☐	MAP/TOP
☐	04.	☐	TCP/IP
☐	05.	☐	DCA (Unisys)
☐	06.	☐	X.25
☐	07.	☐	NOVELL IPX/SPX
☐	08.	☐	APPC/APPN/LU 6.2
☐	09.	☐	NETBIOS
☐	10.	☐	OSI
☐	11.	☐	APPLETALK
☐	12.	☐	OTHER__________
			LAN OPERATING SYSTEM
☐	13.	☐	LOCALTALK (APPLETALK)
☐	14.	☐	BANYAN (VINES)
☐	15.	☐	DCA (IRMALAN)
☐	16.	☐	DCA (10-NET)
☐	17.	☐	IBM (LAN SERVER)
☐	18.	☐	IBM (PC LAN PROGRAM)
☐	19.	☐	MICROSOFT (LAN MANAGER)
☐	20.	☐	UNGERMANN-BASS (NET/1)
☐	21.	☐	NOVELL (NETWARE, 2.X, 3.X, 4.X)
☐	22.	☐	PROTEON (PRONET)
☐	23.	☐	SITKA (TOPS)
☐	24.	☐	3COM (3+, 3+OPEN)
☐	25.	☐	ARTISOFT (LANTASTIC)
☐	26.	☐	HAYES (LANSTEP)
☐	27.	☐	DEC (PATHWORKS)
☐	28.	☐	OTHER__________
			LAN ENVIRONMENT
☐	29.	☐	4M TOKEN RING
☐	30.	☐	16M TOKEN RING
☐	31.	☐	ARCNET
☐	32.	☐	ETHERNET
☐	33.	☐	STARLAN
☐	34.	☐	FDDI
☐	35.	☐	LOCALTALK
☐	36.	☐	10BASE-T
☐	37.	☐	OTHER__________
			OPERATING SYSTEM
☐	38.	☐	DOS
☐	39.	☐	UNIX/XENIX/AIX
☐	40.	☐	OS/2
☐	41.	☐	OS/2 2.X
☐	42.	☐	MVS
☐	43.	☐	VM
☐	44.	☐	VMS
☐	45.	☐	MACINTOSH
☐	46.	☐	WINDOWS
N/A	47.	☐	WINDOWS NT
☐	48.	☐	X WINDOWS
☐	49.	☐	OTHER__________

9 For which areas outside of the U.S. do you have purchase influence? (check all that apply)

1. ☐ Europe
2. ☐ Asia
3. ☐ South America
4. ☐ Australia
5. ☐ Middle East
6. ☐ None

10 Which of the following hardware platforms is installed/planned in your company? (check all that apply)

	Mainframes Currently Installed	Planned Next Year	Minis Currently Installed	Planned Next Year
01. DEC	☐	☐	☐	☐
02. IBM	☐	☐	☐	☐
03. AMDAHL	☐	☐	☐	☐
04. AT&T	☐	☐	☐	☐
05. BULL HNIS	☐	☐	☐	☐
06. DATA GENERAL	☐	☐	☐	☐
07. HP	☐	☐	☐	☐
08. TANDEM	☐	☐	☐	☐
09. UNISYS	☐	☐	☐	☐
10. OTHER__________	☐	☐	☐	☐

MICROCOMPUTERS
(fill in the numbers)

	NUMBER INSTALLED	NUMBER PLANNED NEXT YEAR
11. MACINTOSH 20, 30, 40		
12. MACINTOSH OTHER		
13. PCs BASED ON 80586	N/A	
14. PCs BASED ON 80486		
15. PCs BASED ON 80386		
16. PCs BASED ON 80286		
17. PCs BASED ON 8086/8088		
18. RISC / UNIX BASED WKSTNS		
19. OTHER		

11 Estimated value of networking equipment and services:

A. Which you helped specify, recommended or approved in the last year?
B. Which you plan to help specify, recommend or approve in the next year?

A		B	
☐	1.	☐	$100 million and over
☐	2.	☐	$50 - $99.9 million
☐	3.	☐	$25 - $49.9 million
☐	4.	☐	$20 - $24.9 million
☐	5.	☐	$10 - $19.9 million
☐	6.	☐	$5 - $9.9 million
☐	7.	☐	$1 - $4.9 million
☐	8.	☐	$500,000 - $999,999
☐	9.	☐	$499,999 or less

12 Estimated gross annual revenue of your entire company/institution: (check one only)

1. ☐ Over $10 billion
2. ☐ $1 to $9.9 billion
3. ☐ $500 to $999.9 million
4. ☐ $100 to $499.9 million
5. ☐ $50 to $99.9 million
6. ☐ $10 to $49.9 million
7. ☐ $5 to $9.9 million
8. ☐ $4.9 million or less

13 Estimated number of employees for your entire corporation:

1. ☐ Over 10,000
2. ☐ 5,000 - 9,999
3. ☐ 2,500 - 4,999
4. ☐ 1,000 - 2,499
5. ☐ 500 - 999
6. ☐ 499 or less

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User Track Chairman, *Remedy Corporation*

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Management Track Chairwoman, *Northeast Consulting Resources, Inc.*

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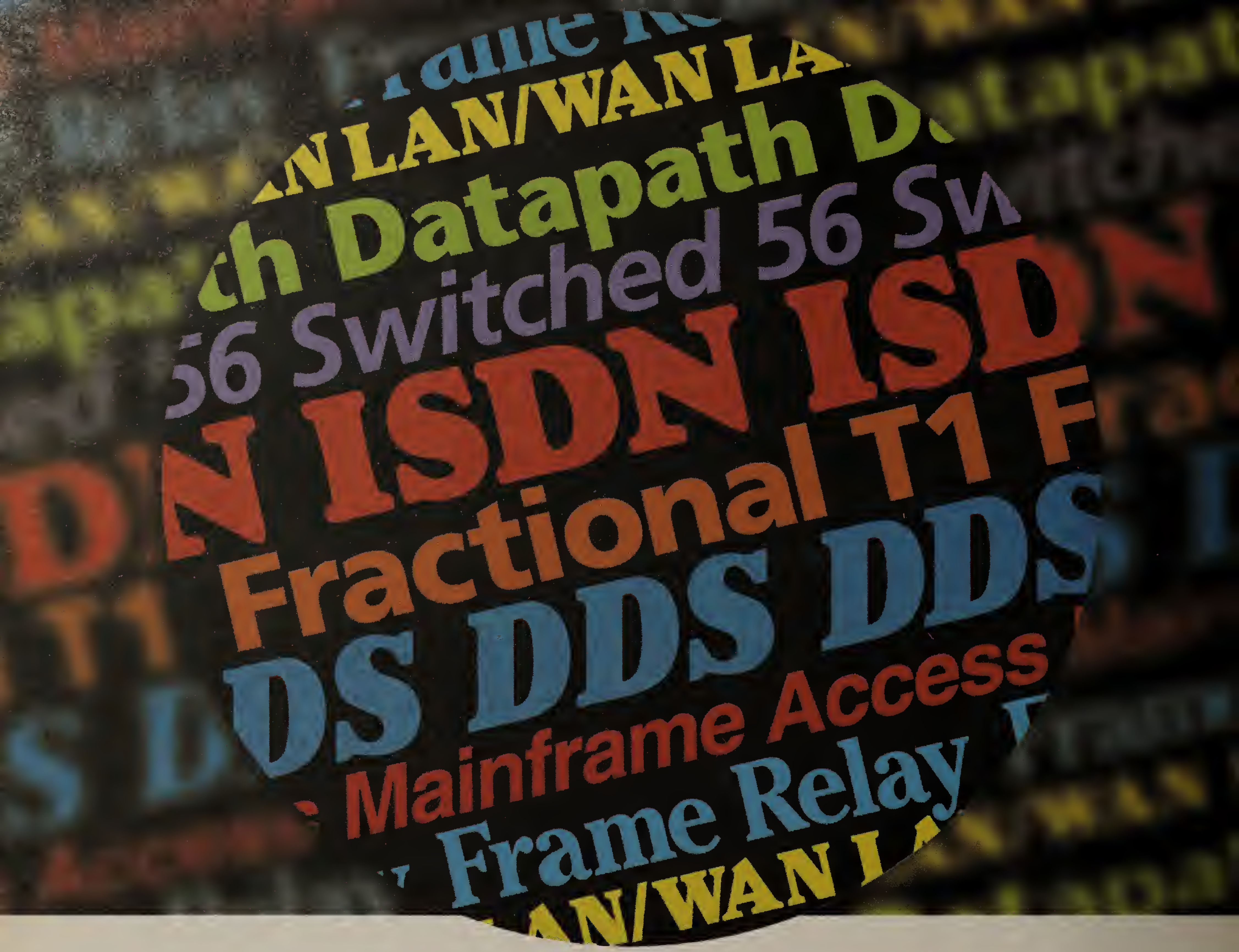

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BRIEFS

Digital Link Corp. last week unveiled an inverse multiplexer that allows users to transmit data at up to 12M bit/sec over aggregated T-1 links.

The DL3800 combines data from one V.35/RS-449 or High Speed Serial Interface port onto two, four, six or eight T-1 links. Another DL3800 at the destination site multiplexes the T-1s into the original high-speed data stream. The DL3800 costs $8,495 and is expected to ship in the third quarter.

Digital Link: (408) 745-6200.

Teleprocessing Products, Inc. last week brought out a data service unit (DSU) that enables users to link remote local-area networks using T-1 and fractional T-1 services. The 7500 Flexcomm DSU transmits data in increments of 56K bit/sec or 64K bit/sec. It also features an optional drop-and-insert capability, which allows users to fill up idle bandwidth on a T-1 link.

The 7500 Flexcomm costs $1,795 and is available now.

Teleprocessing Products: (805) 522-8147.

General Electric Co. has selected **Hewlett-Packard Co.'s** OpenView management platform to govern its global, multivendor networks.

GE will use OpenView to monitor its backbone local-area network internetwork, including routers and wide-area network links, and to perform alarm, performance, fault, configuration, security and accounting management.

HP: (415) 857-1501

Distributed systems management start-up **OpenVision** has acquired **Demax Software**, a supplier of security management software for Unix and Digital Equipment Corp. VMS operating environments.

Although terms of the acquisition were not disclosed, Demax's products will be integrated into OpenVision's Open V*OPSS systems management product due out in December.

OpenVision: (510) 426-6424.

Trio Information Systems, Inc. said its Microsoft Corp. Windows-based facsimile software will now work with an IBM communications adapter.Trio's DataFAX for Windows software will now be bundled with IBM's Mwave WindSurfer adapter, a personal computer add-in card that performs data, fax modem, audio, voice messaging and telephone answering functions. WindSurfer supports 16-bit Industry Standard Architecture (ISA) and Extended ISA PCs powered by Intel Corp.'s 386SX microprocessor. Trio's DataFAX for Windows costs $129 for a single-user version, $595 for a five-user version and $1,895 for up to 100 users. The IBM Mwave WindSurfer card costs $399. All products are available now.

Trio: (919) 846-4990.

LEGENT Corp. last week rolled out Dis-

See Briefs, *page 16*

User finds frugal way to build fiber-optic net

Erie County boosts comm. infrastructure.

BY MAUREEN MOLLOY

Buffalo, N.Y.

Erie County in upstate New York has nearly completed the deployment of a fiber-optic campus network that will tie almost 1,000 users spread throughout the downtown campus here into a single enterprise internetwork.

The county has cost-effectively achieved its goal using only inexpensive 10Base-T hubs, fiber repeaters and a single router, an alternative to a collapsed backbone design that requires more expensive equipment.

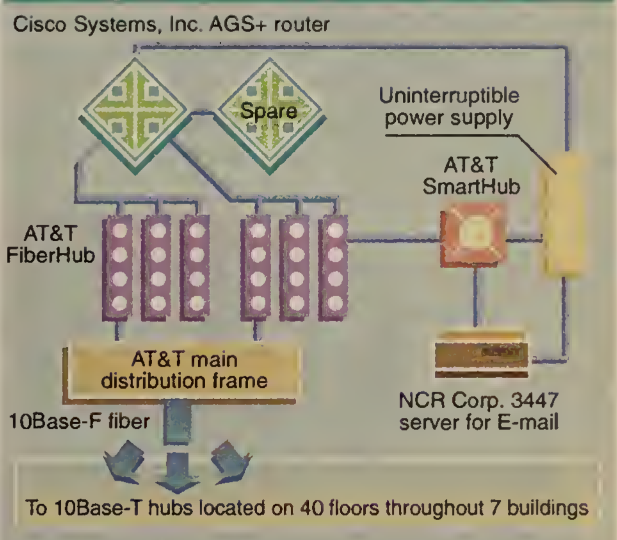
"The essence of the design is that it's allowed us to eliminate the need for multiple hubs, routers and bridges and lets us use simple 10Base-T and fiber," said Philip Richman, communications manager in the county's Division of Information and Support Services. "I estimate we've saved about half a million dollars in equipment costs by going with this design."

Richman said the 10M bit/sec fiber optic-based Ethernet backbone provides the bandwidth required to support all communications between local-area networks in 32 different departments as well as communications between the LANs and the county's host computers. Should bandwidth requirements increase, the fiber can be upgraded to 100M bit/sec via new personal computer adapters and 10Base-T hubs.

Previously, the county had a terminal-to-host network anchored by Unisys Corp. and Digital Equipment Corp. mainframes and minicomputers. But over time, many depart-

See Erie County, *page 12*

User builds fiber into net infrastructure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To 10Base-T hubs located on 40 floors throughout 7 buildings

Using simple AT&T FiberHubs and 10Base-T hubs, Erie County deployed a campuswide internet that supports communications between hundreds of users in multiple buildings.

GRAPHIC BY SUSAN J. CHAMPENY SOURCE: COUNTY OF ERIE, BUFFALO, N.Y.

Users air concerns on digital signatures

BY ELLEN MESSMER

Washington, D.C.

Users and the legal community are cooperating to set tough guidelines for the issuance of digital signatures, the public-key encryption feature for "signing" electronic documents and verifying the integrity of their contents.

Companies that want to use digital signatures in applications such as monetary transfers must give employees public-key signatures embedded in electronic certificates generated by hardware-based systems. The certificates should ensure authenticity of the digital signature, but there is growing concern that a lack of guidelines for certificate issuance could put users at risk of accepting fraudulent digital signatures.

Government agencies and users in the private sector want to establish strict technical and operational requirements for organizations or individuals issuing electronic certificates — dubbed Certificate Authorities (CA).

The Internet Society, based in Reston, Va., established the CA system in its Privacy-Enhanced Mail encryption standard. The Internet Society created a method for reporting stolen or cancelled public keys that were stored on computer disks, smart cards or other hardware tokens so all CAs could be apprised of them.

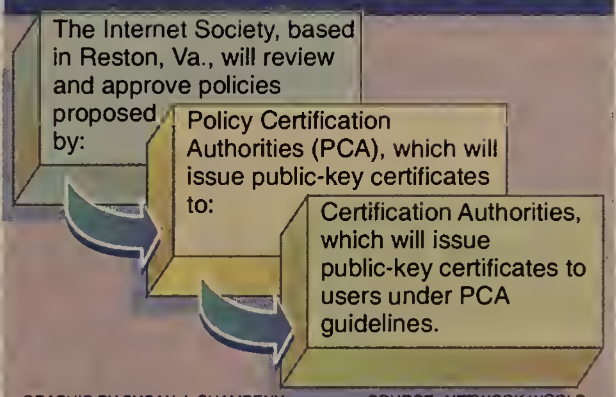
Network managers from banks, manufacturers and government this month told the American Bar Association's (ABA) Information Security Committee they plan to use digital signatures in computer-based applications ranging from electronic funds transfer to electronic notarization and employee time clocks.

But users say they are unsure about the legal implications of the technology and the CA system. Some are calling for the establishment of strict industrywide practices to ease fears and foster widespread use of public-key digital signatures.

This concern has spurred a cooperative effort between users and lawyers active in the ABA's Information Security Committee to create so-called Rules of

See Certificates, *page 12*

How public-key digital certificates will be issued


The Internet Society, based in Reston, Va., will review and approve policies proposed by:
Policy Certification Authorities (PCA), which will issue public-key certificates to:
Certification Authorities, which will issue public-key certificates to users under PCA guidelines.

GRAPHIC BY SUSAN J. CHAMPENY SOURCE: *NETWORK WORLD*

PRIMER

Taking a look at the new SNMP

BY JIM DUFFY

As networks grow and become more complex, the limitations of the Simple Network Management Protocol are becoming more apparent. But rather than becoming obsolete, SNMP is evolving to meet users' changing needs.

A new, extended version of the popular management protocol, dubbed SNMPv2, is designed to address the widely bemoaned restrictions of its predecessor, including the lack of manager-to-manager communications facilities and bulk data transfer capabilities.

SNMPv2 defines a way consoles can exchange information on devices under their control. This capability is advantageous for users establishing a distributed management environment in which control over pieces of the network is dispersed to management platforms across enterprises.

The new version's bulk data transfer facility is a vital component in allowing management platforms to work together and exchange an increasing volume of information on network devices and applications. SNMPv2 also includes enhanced security features that were originally defined in the interim Secure SNMP specification.

The challenge for the authors of SNMPv2 was to address the shortcomings of SNMP while retaining the protocol's strongest feature — its ease of use. As a result, SNMPv2 was designed as an extension of the SNMP structure for defining managed objects and the exchange of management information.

SNMP relies on manager-to-agent communica-

See SNMP, *page 17*

Erie County

Continued from page 11

ments began deploying their own personal computers and LANs, irrespective of other department's requirements.

In light of these ever-growing islands of connectivity, the state two years ago gave Richman an edict to implement a standardized county-wide network that would enable offices in the 28 cities to communicate with each other.

The new design uses a collapsed backbone star configuration, which cuts down on the number of network components and confines critical hardware to a central location where it can be more easily managed. But instead of feeding all traffic into a high-capacity router, which then acts as the internet backbone, Erie County uses six AT&T FiberHub fiber repeaters housed in the central data center to form LAN segments.

RICHMAN

The ports on the FiberHubs are connected to an AT&T main distribution frame, which connects the fiber from each repeater to AT&T SmartHub 10Base-T hubs located on 40 floors.

Today, there are essentially two LANs, or communities of interest, each made up of three fiber hubs apiece that are daisy-chained together to create a single segment. The data center also houses a Cisco Systems, Inc. AGS+ router, which is used to provide communications between users on the different LAN segments.

Once a LAN segment becomes too congested, Richman said he simply installs another fiber repeater and daisy-chains it to the existing ones.

"This design essentially lets us create our subnets compactly in one spot, even though the fiber is widely distributed," he said.

It also reduces dependence on bridges or routers to link physically dispersed users.

"With 37 wiring closets, concentrators equipped with bridging and routing would have cost $518,000," he said. "Instead, cross-closet feeds and the star configuration allowed us to establish a widely distributed network of low-cost 10Base-T hubs for $68,000."

Richman also deployed an AT&T StarSentry 10Base-T hub in the data center to connect to a Unix-based AT&T StarServer, which acts as an electronic mail server, supports an Internet connection to and runs network and systems management applications. ☒

Certificates

Continued from page 11

Practice that will establish high standards of accountability for CAs, which will include vendors and users alike.

To avoid what one user jokingly called the "Certificates R Us" problem, the committee has begun reviewing the idea of requiring CAs to be insurable, bondable, and subject to an annual audit and strict operational guidelines. It also is looking into possible agreements to limit liability.

Robert Jueneman, manager of the secure systems department at GTE Laboratories, Inc., said his company is testing digital signatures as a way for employees to sign time cards electronically. He expects to see several other applications in place within a year.

But the company has been arguing over liability issues with RSA Data Security, Inc., which is at the top of the certificate issuance chain, and Apple Computer, Inc., which plans to become a CA under RSA's policy rules.

Rules of the road

The American Bar Association's Information Security Committee plans to issue "Rules of Practice" for Certificate Authorities (CA) by this fall, which will include:

- CA organizational structure
- Certificate issuance
- Credentials evaluation
- Risk-of-loss rules
- Electronic time stamps
- Card technology
- Certificate revocation
- Notarization
- Transborder communications
- Professional standards
- Minimum service levels

SOURCE: *NETWORK WORLD*

"RSA and Apple lawyers are busy protecting themselves but doing little to protect the poor user," Jueneman said. "We have to have a way to limit liability of the certificate." He added that attorneys at GTE "are in the dark" about the legal impact of the technology.

A systems analyst from a New York bank said his firm is investigating the use of digital signatures in electronic transactions but has concerns about the risk of fraudulent signatures and the failure by CAs to adhere to stated policies in checking users' identification.

"How many millions are people going to have to lose [through accepting fraudulent digital signature certificates] before everyone says this CA stuff is dangerous?" he asked.

The systems analyst, who requested anonymity, advocated creating industry trading-partner agreements for digital signatures.

"We have concern from our legal counsel about what we are getting into with transactions," said Lee Stanton, senior consultant with GE Information Services. "But a lot of transactions are going through the network that need this and are exposed. The digital signature is a very strong tool." ☒

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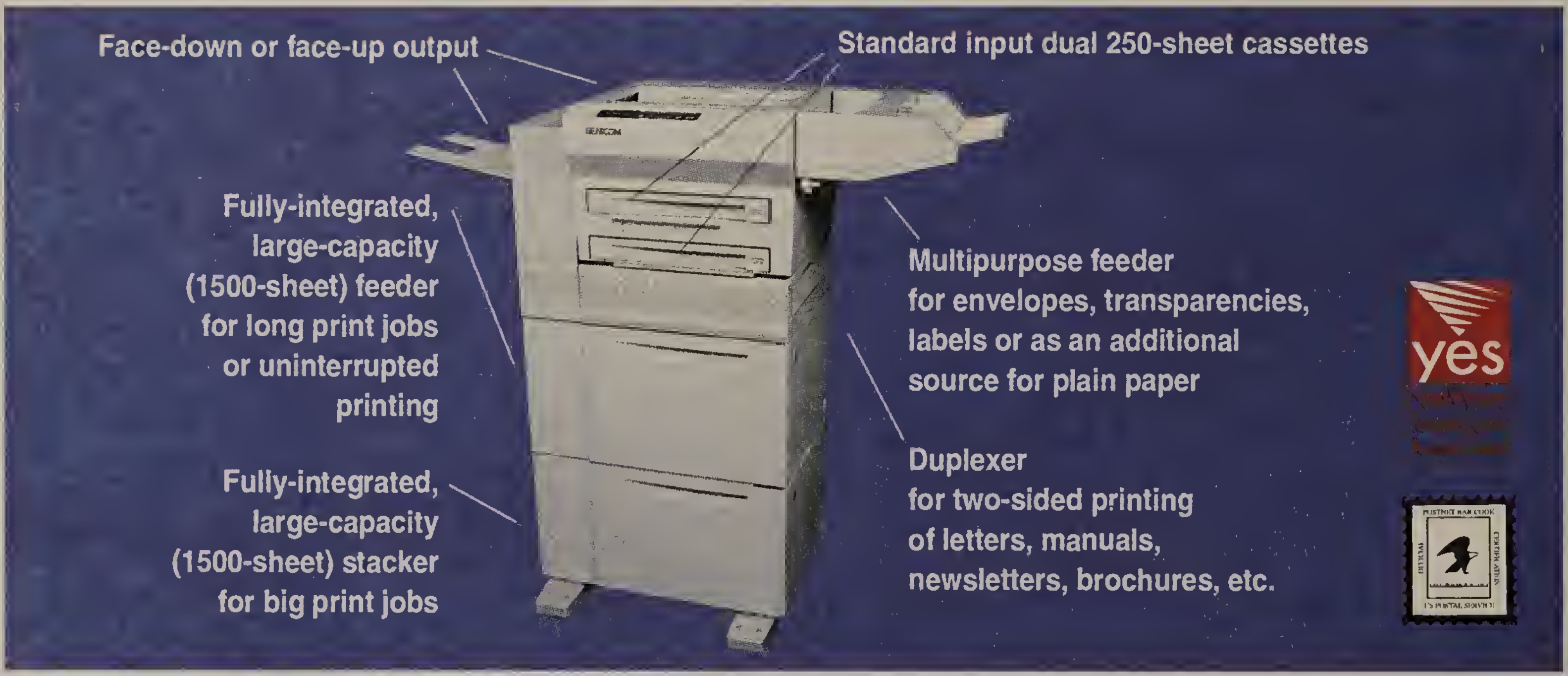
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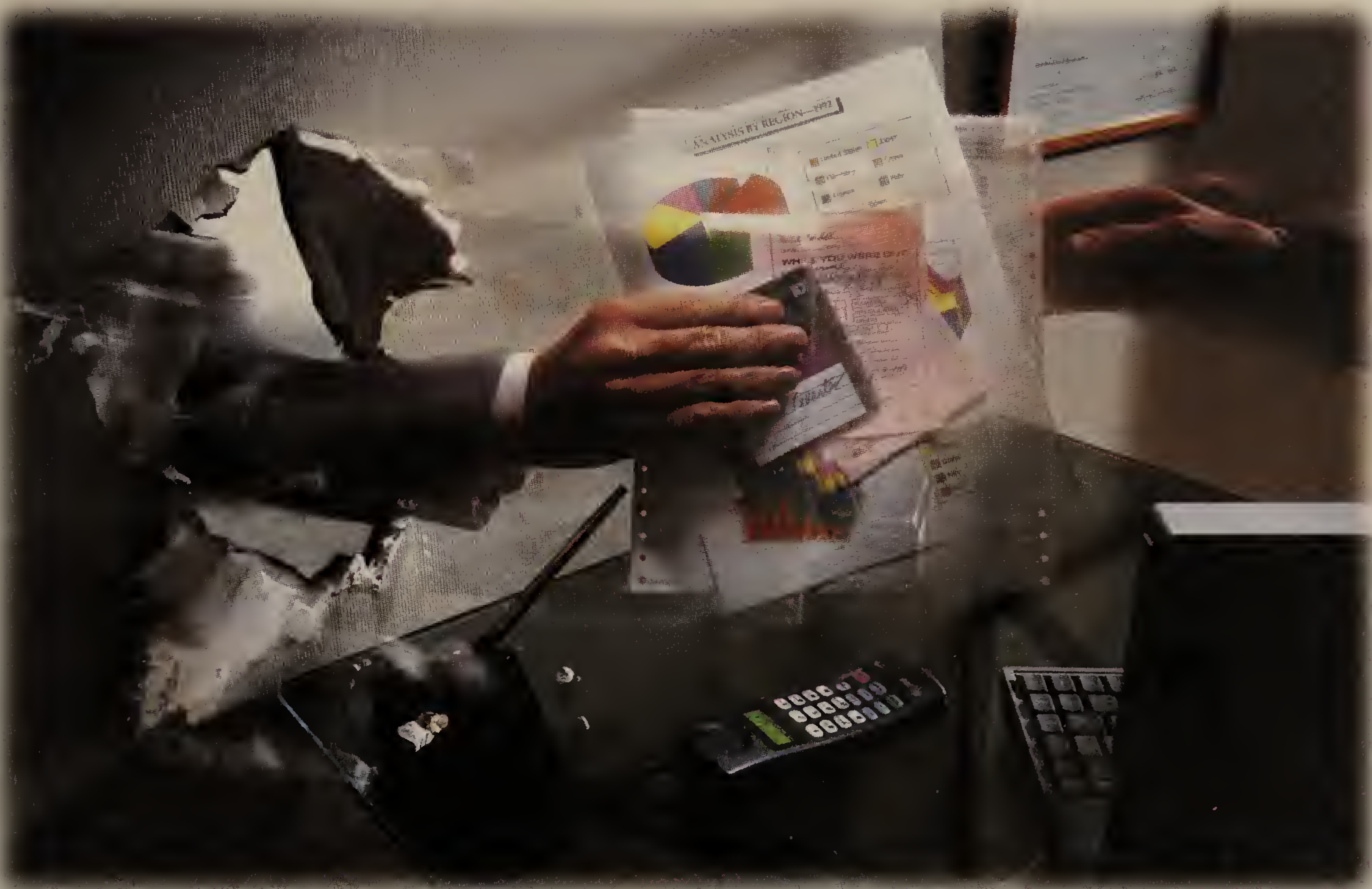

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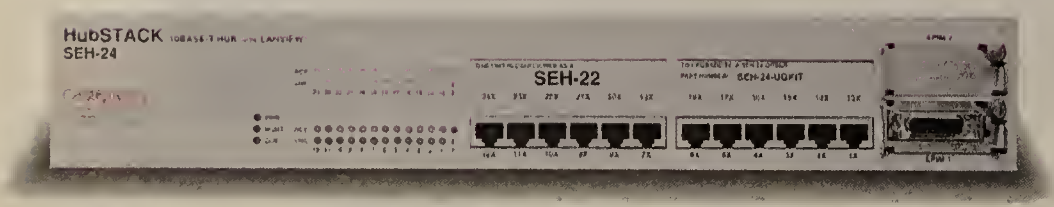

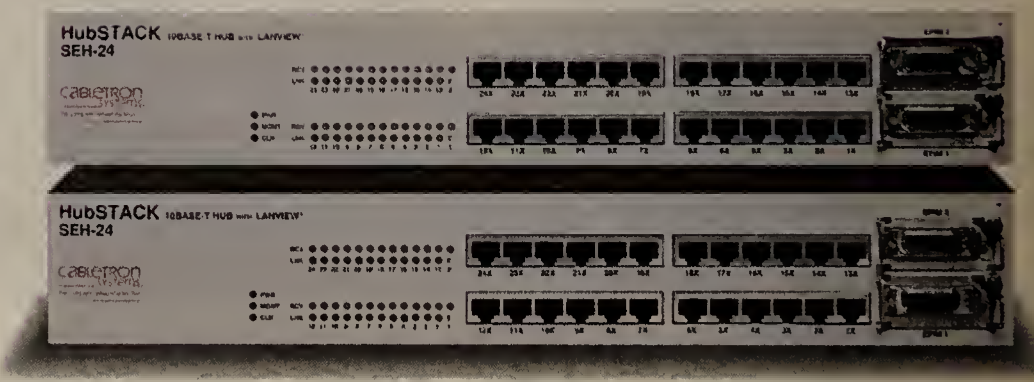

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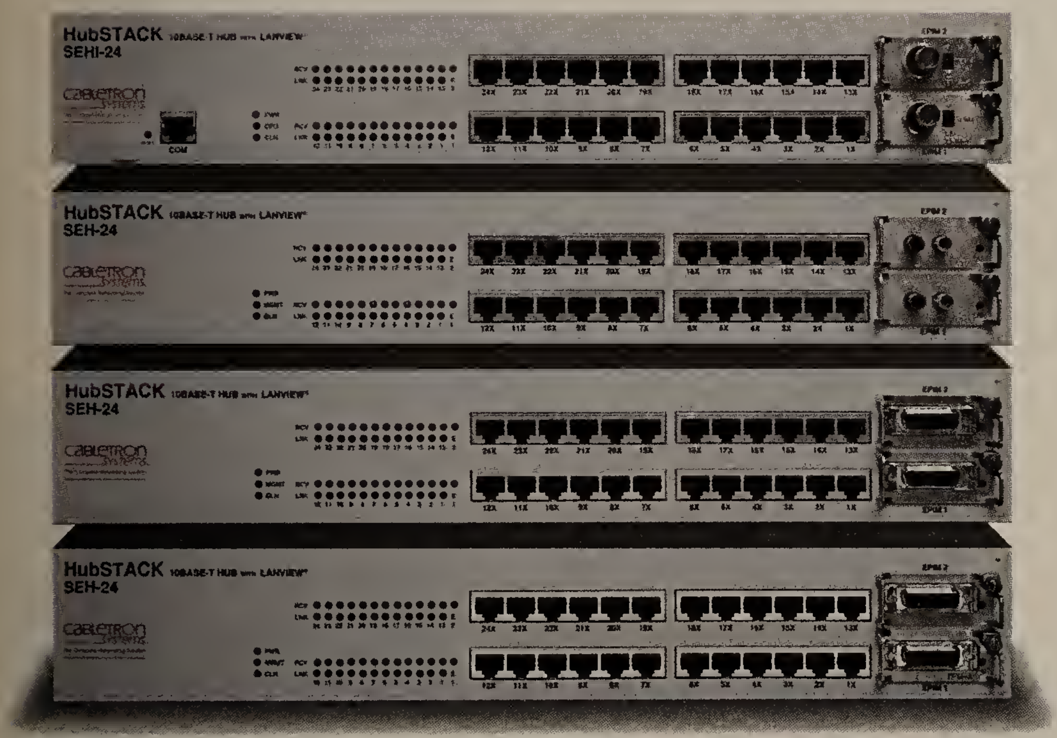
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SEHI-24
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SEH-24
HubSTACK 10BASE-T HUB with LANVIEW
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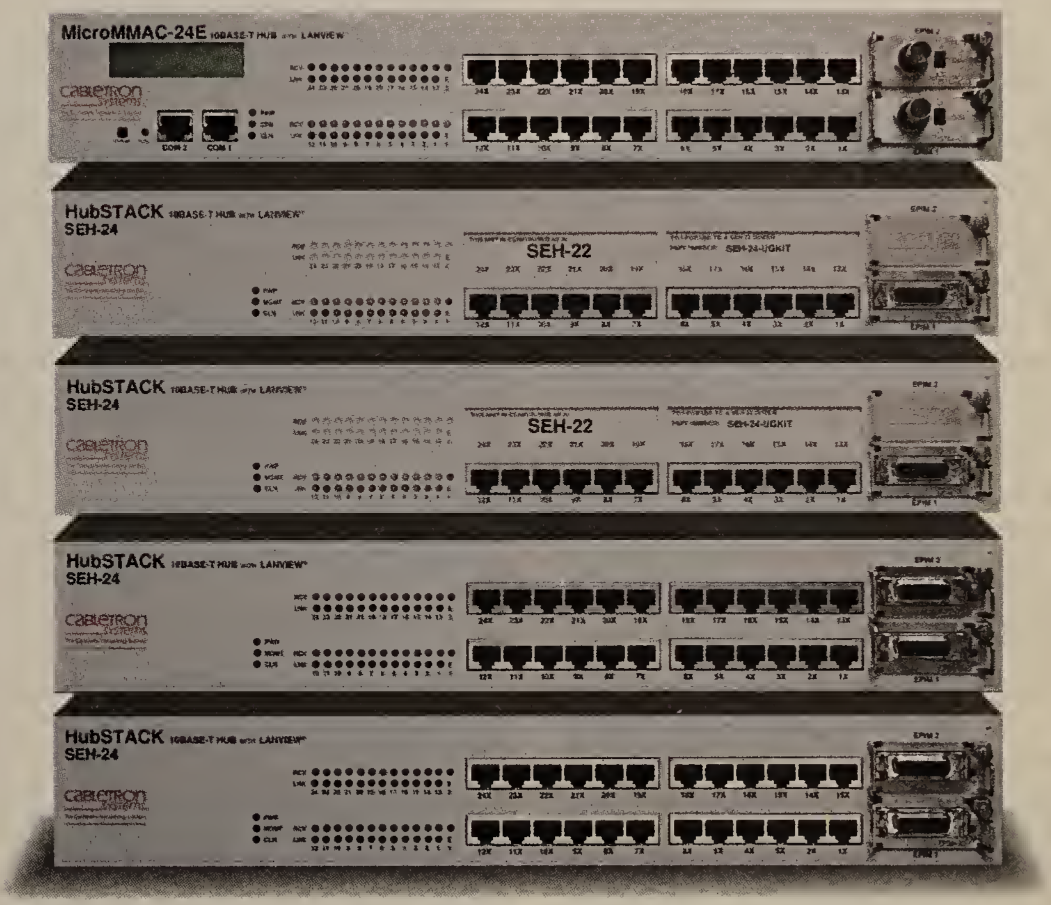
MicroMMAC-24E 10BASE-T HUB with LANVIEW
HubSTACK 10BASE-T HUB with LANVIEW
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HubSTACK 10BASE-T HUB with LANVIEW
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Circle Reader Service #4

IBM plans big role for LMU/2 tool

BY MICHAEL COONEY

Raleigh, N.C.

IBM is positioning its LAN Management Utilities/2 (LMU/2) to play a major role in its multivendor distributed network management strategy.

LMU/2, once available by request only, runs on OS/2 machines and can manage OS/2 and Novell, Inc. NetWare servers and DOS, OS/2 or Windows clients on token-ring and Ethernet local-area networks.

Currently, it feeds performance and systems management information to IBM's LAN Network Manager or mainframe-based NetView net management systems. LMU/2 also supports the ability to automatically restart machines that are turned off and set token-ring or Ethernet utilization thresholds.

LMU/2 has become a popular way for users to manage their LANs, said Michael Willett, IBM's network management strategist, who claims that, in the last couple months alone, the company has sold more than 5,000 copies.

A new version of LMU/2, expected in the fourth quarter, will significantly boost the program's visibility by giving it the ability to send management information to IBM's newest strategic net management platforms: NetView/6000 and LAN NetView. It will also include support for a Simple Network Management Protocol agent and Apple Computer, Inc. Macintosh clients.

"LMU/2 will give users an integrated, inexpensive way to manage all types of LANs from a variety of central locations, such as LAN NetView, NetView/6000 or host NetView," said Rob Neppel, planning manager for LMU/2.

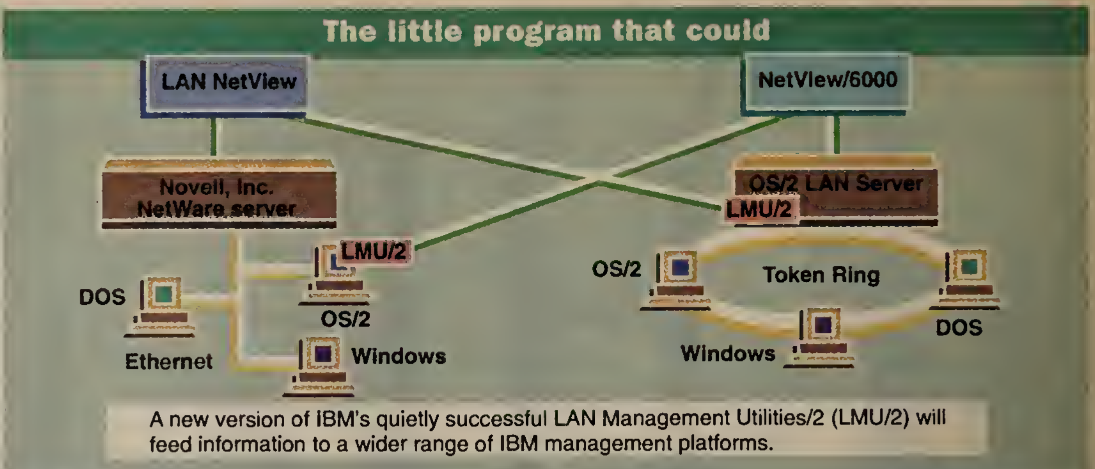
Analysts said IBM is heading in the right direction with its LMU/2 product.

"The types of applications [LMU/2 will enable] make sense because IBM is trying to [increase the functionality] of its multivendor management products to handle the distributed multivendor LAN environments," said Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J.

"NetView/6000 is the platform IBM is going to scale up to manage diverse environments," added Patrick McBride, director of services and systems management strategies with the META Group consultancy in Westport, Conn. "Adding support for non-SNMP environments like NetWare will make the platform stronger."

The current version of LMU/2, Version 2, sells for $795 per server. Version 3, expected by December, will be priced similarly.

✆ IBM: (800) 426-2468.



A new version of IBM's quietly successful LAN Management Utilities/2 (LMU/2) will feed information to a wider range of IBM management platforms.

GRAPHIC BY SUSAN J. CHAMPENEY

SOURCE: IBM, RALEIGH, N.C.

BRIEFS

Continued from page 11

tribuLink, a mainframe-based software distribution product that will let Systems Network Architecture users electronically deliver and track software updates to multivendor equipment.

DistribuLink resides on an IBM MVS mainframe as a VTAM application. The software is built on top of LEGENT's XCOM 6.2 file-transfer software, which provides LU 6.2 connections to equipment from more than 20 vendors, including Digital Equipment Corp. VAXes and Hewlett-Packard Co. HP/9000s.

DistribuLink will be available this month. Pricing is based on the size of the MVS platform and number of users. A midsize MVS machine with 500 workstations would cost $75,000.

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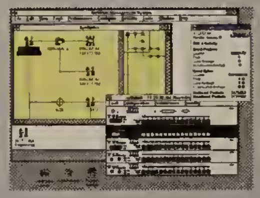

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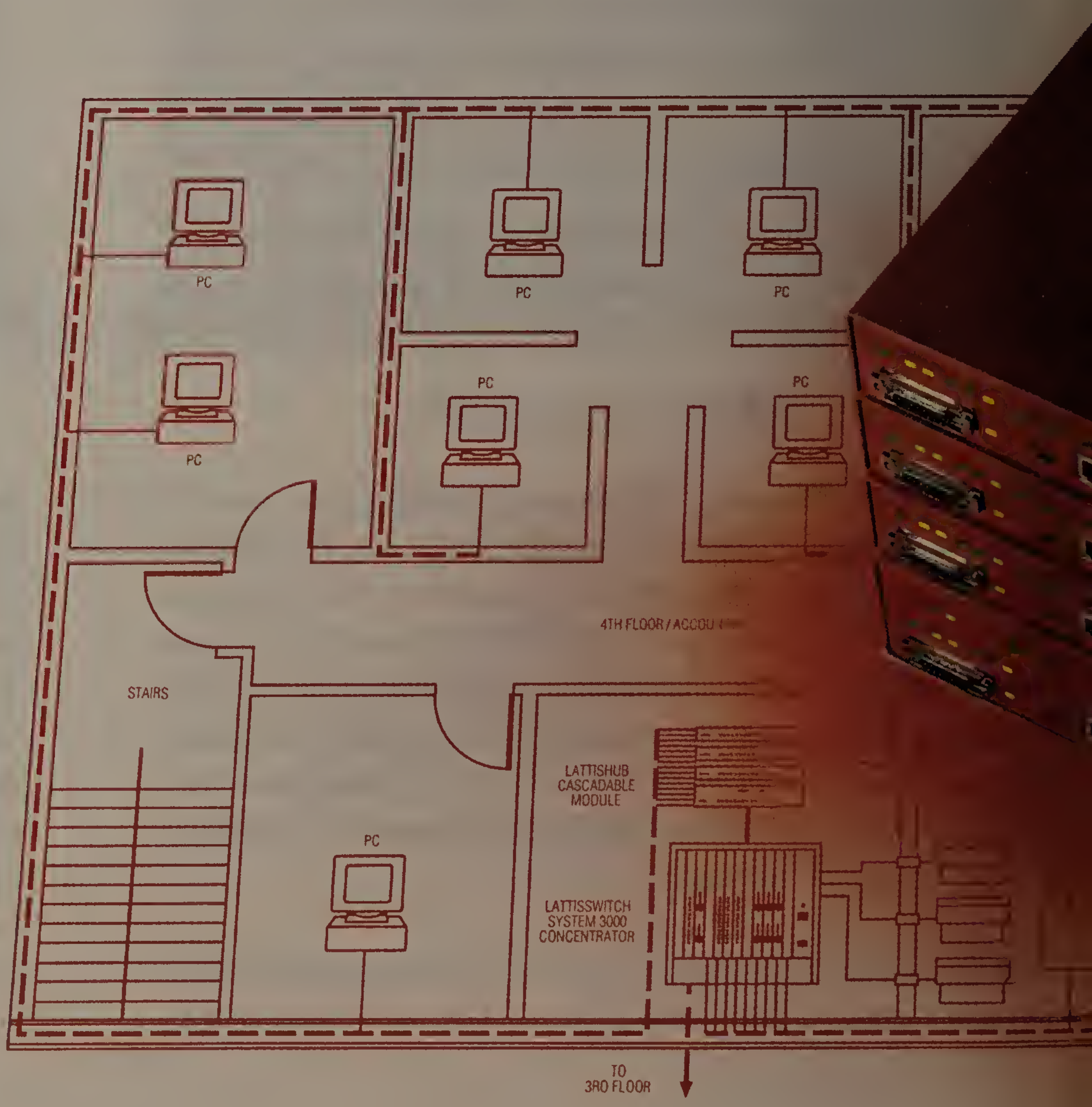
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SNMP

Continued from page 11

tions, through which a manager queries — or polls — an agent on the managed device with a GET command for status information. Polling frequency is determined by the network administrator.

If the information returned to the manager indicates a problem, such as a lost connection, an alarm is generated and displayed on the SNMP console.

SNMP managers can also relay SET and TRAP commands to an agent. SET allows the console to control or change management variables, and TRAP instructs the agent to send specific event information to the console instead of waiting for a poll.

SNMPv2 employs an event-driven model, meaning agents can alert a management console without being polled. This is a big plus because it decreases the amount of traffic on the network.

All SNMP and SNMPv2 commands are encapsulated in messages. And SNMPv2 Management Information Bases (MIB) — databases of information on managed objects — are defined and constructed in much the same manner as they are for SNMP. As a result, SNMPv2 offers backward compatibility with its predecessor.

Like SNMP, SNMPv2 defines two types of information exchange: manager and agent information request and response, and agent and manager unconfirmed. Manager and agent request and response is the polling and command sequence described above. Agent and manager unconfirmed means a message from a manager was not received or accepted by the agent for some reason.

But SNMPv2 adds a third type, which is manager-to-manager request and response. Indeed, SNMPv2 has a MIB that defines manager-to-manager interaction.

The SNMPv2 manager-to-manager MIB is made up of two groups, an event group and an alarm group. The event group defines specific network occurences to be monitored and the alarm group specifies event thresholds that should not be exceeded. Certain events can trigger alarms.

Bulk data transfer is designed to decrease the number of request/response exchanges necessary to access a large amount of management data.

If the amount of data requested by the manager is too big, the SNMPv2 agent or manager will transmit as much data as possible instead of responding with an error message. The manager can then send another request for the data it did not receive in the initial response.

This alleviates a major shortcoming of SNMP: Managers had to determine how to retransmit the original request as a series of smaller messages.

For security, SNMPv2 introduces the concept of contexts. Contexts are a collection of resources that can be used by the SNMPv2 manager to locally or remotely manipulate a device. When a management console talks to a device its message contains the context within which a request/response interaction should occur. Based on the context information, a managed device is authorized to perform a series of actions, called access control policies, on behalf of the manager. ◼

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Circle Reader Service #12

Help desk tool gets link to IBM data

BY MICHAEL COONEY

Sunnyvale, Calif.

Users of Answer Computer, Inc.'s Unix-based Apriori help desk system can get an integrated view of their IBM networks through a new interface to IBM's mainframe-based Information/Manager (Info/Man) database.

The Apriori platform lets help desk administrators document local-area network problems, such as hardware failures, and track them through to resolution. Until now, Apriori was designed for use in Transmission Control Protocol/Internet Protocol environments and had no links to the IBM Systems Network Architecture world.

With the new interface, users can bring up problem data from Info/Man and Apriori's own database simultaneously.

Info/Man is used by IBM's host-based NetView to store problem and net configuration data.

When a problem occurs with a device on the SNA network, Apriori can gather information from Info/Man, create a trouble ticket and generate a service order.

"We'e trying to give users better integrated help desk facilities for their SNA and multivendor LAN environments," said Louise Kirkbride, vice president of Answer Computer. "Users can now track problems and gather comprehensive information on legacy equipment from the Info/Man database."

The Apriori-Info/Man interface is available immediately and is priced starting at $20,000.

✆ Answer Computer: (408) 739-6130.

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LOCAL NETWORKS

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Homeless shelter to 'network' veterans

BY SKIP MACASKILL

Boston

While the issue of missing American prisoners of war in Vietnam rages on, the veterans' homeless shelter here is determined to keep track of the men who pass through its doors.

Chairman of the Joint Chiefs of Staff Colin Powell and Mass. Gov. William Weld on hand at ceremony.

The Vietnam Veterans Workshop, Inc. last week began installing a local-area network that will provide connectivity for the shelter's 60 disparate personal computers and serve as a pilot project for the possible formation of a national veterans' homeless shelter network.

The new network will also allow the shelter to maintain an up-to-date database of each veteran's vital information.

"The idea is to track information on each veteran so when he comes in, we know who he is, where he's been and what he needs in terms of medication, counseling or other services," said Bob Herlihy, business manager at the homeless shelter.

Relying on equipment donations from a number of LAN vendors, the shelter will link freestanding PCs with a hub-based Ethernet that will help it more efficiently deliver a myriad of services — job placement, job training, housing placement, peer counseling and an eye clinic, among others.

Racal-Datacom, Inc. has donated two fully loaded INX 5000 intelligent hubs. A four-slot model will anchor an administrative and accounting Ethernet LAN with

See Homeless, *page 21*

AppleTalk Forum explores tunneling

Mactivity sparks agreement, frustrations.

BY FREDRIC PAUL

When the AppleTalk Networking Forum (ANF) held its first meeting at the recent Mactivity '93 show here, a collection of users, vendors and other interested parties showed up to express both support for the future of AppleTalk and frustration with its limitations.

The ANF showed off its new bylaws, made a pitch for membership and — as expected — held the first meetings of five key working groups: AppleTalk Tunneling Architectures, Zone Name Changing, Transport Independent AppleTalk Services, Macintosh File Services MIB and AppleTalk APIs on DOS/Windows (*NW*, June 28, page 4). These working groups have only now begun the ANF's technical work.

By far, the most contentious and best attended working group concerned AppleTalk Tunneling Architectures. Based on the key issue that helped launch the ANF, this group was formed to review today's divergent tunneling technologies and make recommendations to assist users in picking the right option for the job.

Existing proprietary tunneling options include Apple Computer, Inc.'s AppleTalk Update Routing Protocol; Cayman Systems, Inc.'s Simple Encapsulation of DDP in IP and Traffic-Reduced Encapsulation of DDP in IP, generally referred to as Cayman Tunnels; the so-called Dr. Pepper specification under development from several vendors; and the older IPTalk approach still used by a couple of vendors.

> **"TCP/IP and IPX are the dominant network protocols, AppleTalk must innovate to stay relevant."**
>
> Ted Stabler, president of Cayman Systems, Inc.

The group was also supposed to produce a document identifying the components necessary to create an AppleTalk tunnel over any foreign transport.

Finally, the working group was charged with synthesizing the current technologies into a set of ANF-backed AppleTalk tunneling standards addressing the physical layer, functional descriptions and protocol-specific issues.

But a few users of large AppleTalk networks quickly expanded the purpose of the group to include the larger issue of AppleTalk's lack of scalability in enterprise networks.

"The real issue is routing technology," said Morris Balamut, a senior staff engineer at Hughes Business Communications in Long Beach, Calif., who works with hundreds of growing AppleTalk local-area networks in a single building. "I'm really concerned about managing [the internet] and keeping it running."

"We do AppleTalk routing on a global scale," added Randy Buchholz, director of global network operations at Motorola, Inc. in Schaumburg, Ill. "Raw scalability is a problem. We can't absorb the routing overhead on our network." The issue is how to control the propagation of AppleTalk routing information, he said.

"Tunneling is only a temporary solution, a tactical solution," explained Alf Farnham, Macintosh network analyst for the Boeing

See Forum, *page 20*

BRIEFS

Pilkington Communications, Inc. has rolled out MaxiHub, a 24-port 10Base-T Ethernet hub that can be stacked three high to support as many as 72 users in a single logical repeater configuration. The base unit offers RJ-45 shielded twisted-pair ports and optional interfaces for fiber and thick and thin coaxial cable, as well as an attachment unit interface port.

Users may also purchase an optional Simple Network Management Protocol module that can be used to manage the entire stack. Available now, the MaxiHub costs between $1,700 and $2,500, depending on configuration.

Pilkington: (914) 683-3732.

Hewlett-Packard Co., IBM, Microsoft Corp. and **Novell, Inc.** have agreed to support the Simple Network Management Protocol as a standard for managing printers on local-area networks. Offering a protocol that works across many existing systems rather than a separate protocol for specific peripherals will ease management concerns, the companies said.

HP supports SNMP with its LaserJet 4Si and 4Si MX printers, which automatically switch between protocols and support the major operating systems, including IBM's OS/2 LAN Server, Microsoft's LAN Manager, Windows for Workgroups and Windows NT, and Novell's NetWare.

HP: (415)857-1501.

Stalker Software last week announced new versions of its PortShare Lite and PortShare Pro Macintosh networking software, which is designed to let users share serial devices on AppleTalk local-area networks. The $49 PortShare Lite Version 2.0 adds support for the AppleTalk Remote Access Protocol, while the $149 PortShare Pro Version 2.0 now includes a Statistics Panel to log real-time serial-port throughput and transmission errors. Stalker has its development labs in Moscow, Russia and its products are distributed in the U.S. by Global Way, based in Campbell, Calif.

Global Way: (800) 262-4722.

Northern Telecom, Inc. has added a 16-port work group hub to its X-DDI

See Briefs, *page 21*

CUSTOMER SERVICE

Sun forms new service business unit

BY CHRISTINE BURNS

Mountain View, Calif.

Sun Microsystems, Inc. has formed an independent business unit to service and support its installed base of some 800,000 systems around the world.

HAMBLY

Sun officials said SunService, Inc. — one of its six subsidiaries — was created because the companyrecognized that support is beginning to play a larger role in customer buying decisions.

SunService officials said they will focus the unit's efforts to three broad areas: hardware, software and network support; education and training; and installation, network management, software migration and disaster recovery planning.

SunService will provide support for Solaris on Intel Corp. and PowerPC machines and SPARC-based machines. Through the use of outside contracted partners, SunService will provide support for all hardware and software componenets in systems that include Sun products.

Larry Hambly, former vice president of marketing at Sun Microsystems Computer Corp. (SMCC), was named president of the new unit. SunService, which was officially open for business on July 1, has 1,800 employees and is headquartered in Milpitas, Calif.

Customer service issues were previously handled by an internal service division within SMCC. That department last year handled more than 550,000 service calls in its 24 worldwide solution centers. In April, SMCC streamlined ordering and pricing of service and support options with its SunSpectrum program. That program was designed to make it easier for customers to do business with Sun by reducing purchase and administration hassles.

Hambly said the transition from SMCC's service division to SunService will not affect current service contracts. Contract pricing will not increase in the immediate future, he said.

In addition to service contracts, SunService will take over the operation of Sun's 66 training centers, located in 20 countries, for instructor-based education of all end users and resellers of Sun products.

The unit will also continue to promote SunTutor, Sun's self-paced multimedia education tool available for most of its products. Hambly said SunService plans to expand the SunTutor business across multiple system platforms starting this summer by adding training support for users of Solaris 2 on Intel.

©SMCC: (415) 960-3600.

Cameo integrates bridge/router into stackable hub

BY SKIP MACASKILL

Nashua, N.H.

Joining the crowd rushing to provide simple, low-cost routers for remote sites, Cameo Communications, Inc. has rolled out a new work group hub that offers integrated remote bridging and routing capabilities.

The new UltraHub 1030 is a 12-port 10Base-T stackable hub based on the company's Cameo Open Boundary Router Architecture, which combines the functionality of a hub, remote bridge and remote access router in one box.

It comes bundled with Cameo's UltraView Simple Network Management Protocol-based net management system and can support and manage as many as four 12-port 1010 hubs in a single stack, or up to 60 Ethernet users.

In addition to the 12 unshielded twisted-pair RJ-45 ports, the hub has a BNC connection and two attachment unit interface ports. It also has a wide-area network port for routing and bridging capabilities.

The wide-area network port supports a variety of serial interfaces, including RS-232, RS-422, RS-449, V.35 and X.21.

It can also connect to a central router via frame relay or Integrated Services Digital Network services at speeds of up to 256K bit/sec. Support for full T-1 speeds will be added in the future.

The router, which supports the Internet Protocol, can filter media access control-layer addresses at the rate of 14,480 packet/sec and forward at the WAN connection's full line speed. Support for Novell, Inc.'s Internetwork Packet Exchange (IPX) protocol will be a future upgrade.

As a remote bridge, the 1030 supports both transparent bridging and the IEEE 802.1d Spanning Tree Protocol.

Available in the fourth quarter, the 1030 costs $2,995.

© Cameo: (800) 438-4827.

NETWORK INTERFACE CARDS

UB adds SNMP agent for its Ethernet NIC

BY SKIP MACASKILL

Santa Clara, Calif.

Ungermann-Bass, Inc. has introduced a Simple Network Management Protocol agent for one of its Ethernet adapter cards that is designed to free up host memory and does not require a proprietary driver or proxy agent.

The SNMP enhancement to UB's Ethernet MasterLAN Industry Standard Architecture (ISA) Network Adapter Card will also enable net administrators to cull management information more quickly, according to the company.

The MasterLAN SNMP agent interacts directly with the management system.

Unlike some adapters that communicate with management consoles through proxy agents on other network devices such as servers, the MasterLAN SNMP agent — which includes support for SNMP Management Information Base II — interacts directly with the management system, increasing efficiency and speeding the information exchange.

While traditional SNMP adapter card agents can require up to 40K bytes of memory, the MasterLAN card is loaded on the original card, saving personal computer host memory.

Also, all SNMP message processing is performed by the card itself, so no additional strain is placed on the PC's CPU for management applications.

The agent includes a BootP client application that initializes the agent's Internet Protocol address, its subnet address and the IP address of its default router gateway on installation, eliminating the need for the net manager to configure the card manually. Since the agent includes its own User Datagram Protocol stack, it is host protocol-independent.

The SNMP agent for the MasterLAN Ethernet card will be offered as a free upgrade to existing users beginning next month.

The agent will also be included at no extra charge on all MasterLAN ISA adapters at that time.

The adapters wil be sold at a cost of $375.

© UB: (800) 777-4526.

Pacer upgrades AppleTalk stack

New support for remote access, compression.

BY FREDRIC PAUL

La Jolla, Calif.

Pacer Software, Inc. next week plans to announce an enhanced version of its portable AppleTalk protocol stack and router technology.

Pacer licenses this source code to vendors that sell AppleTalk network equipment. Licensees can then compile it to work with a variety of network operating systems and environments.

The new protocol stack and router software support the AppleTalk Remote Access Protocol (ARAP) for remote dial-in users, implements Apple Computer, Inc.'s SmartBuffering data compression, and works with token ring (with source routing), Fiber Distributed Data Interface, serial ports and half-router (wide-area only) connections, as well as LocalTalk and Ethernet.

According to Pacer, the new link-level options will lead to new products — especially routers — with AppleTalk support that work with a much wider variety of network topologies.

Improved router table algorithms in the new release were designed to significantly improve AppleTalk's routing performance on large internetworks, an increasingly thorny problem for network managers using AppleTalk in complex enterprise environments (*NW*, June 28, page 4). Inclusion of ARAP was intended to make it easier to create remote access servers accessible via Apple's standard ARA client software.

Pacer's portable AppleTalk software technology will be licensed to hardware and software OEMs that will modify the software and direct it to the OEMs' own particular drivers, said Geoffrey Blum, Pacer's director of channel development. Many of these OEMs already work with other protocols and want to include AppleTalk in the mix, he said.

The protocol stack has been ported to both single-processor, single-threaded and multiprocessor, multithreaded environments. OEMs have ported it to DOS, OS/2, Windows NT, Unix and a number of real-time operating environments.

Earlier versions of the technology have been licensed in all types of network products, including routers, printers and print servers, modem servers, facsimile servers and ARA servers. Current Pacer OEMs include Adobe Systems, Inc., Apple, Data General Corp., Emulex Corp., Global Village, Hewlett-Packard Co., Hughes LAN Systems, Inc., Microsoft Corp., Motorola, Inc. and 3Com Corp.

Pacer and Apple have also codeveloped and co-own a Unix streams version of the protocol.

Pacer and Apple have also codeveloped and co-own a Unix streams version of the protocol, Blum said, but "This is a C-based version that is more portable to custom environments." In addition, he said, "We offer support, [while Apple delivers only] code over the wall."

Pacer will license the source code to the protocol stack, router ARAP protocol individually or in any combination.

Available immediately, the ARAP protocol license costs $15,000, while a complete protocol stack, router and ARAP implementation costs $50,000.

© Pacer Software: (619) 454-0565.

Forum

Continued from page 19

Commercial Airplane Group in Seattle. "A better routing algorithm would be a strategic solution," Farnham said.

Simple point-to-point tunneling schemes such as the ones proposed do not solve the routing problems, concluded Richard Ford, an enterprise network engineer at Falcon Microsystems, a systems integrator.

"We've got to fix the huge AppleTalk network problem," Ford said. "There needs to be a solution so that you don't have to be a rocket scientist to deal with more than [a few hundred routes]."

Jonathan Wenocur, ANF president and chairman of the board, acknowledged that AppleTalk faces both a routing issue and a tunneling issue. "They overlap, but they are separate," he said, adding that the question remains as to whether better tunneling or a new routing technology is needed.

In response to the additional issues, the ANF working group decided to examine tunneling and routing issues separately, collecting comments and suggestions on both.

While the tunneling group hashed out its issues, the Zone Name Changing working group looked at changing zone names on large internets without partitioning the network, backward compatibility with AppleTalk Phase II routers, the effects of partial updates and other topics.

The Transport Independent AppleTalk Services group looked at issues surrounding higher level AppleTalk services over the Transmission Control Protocol/Internet Protocol and other protocols.

The Macintosh File Services MIB group reviewed a proposed "Management Information Base for Macintosh Network File Services" paper from Cayman Systems and Pacer Software, Inc.

Lastly, the AppleTalk APIs on DOS/Windows group began work on recommending standard AppleTalk application program interfaces with DOS, Windows and Windows NT.

To properly support its technical work, the ANF must attract new members. "The success or failure of the ANF depends on the number of people who get involved," said Dan Schwinn, president of Shiva Corp.

One reason for this is that the money contributed by the founding members "is pretty much used up," said Wenocur. "OK, there's some left," he admitted, "but we need new members to make the ANF self-sustaining."

Headquartered in San Francisco, the ANF charges $5,000 for an annual Principal Membership, which is intended for vendors and enterprise AppleTalk users.Limited to one per organization, a Principal Membership allows five people to attend ANF conferences, planned to meet twice a year, and entitles the member organization to vote on recommended specifications.

Individual Memberships cost $1,000 ($500 for academics) and allow one person to attend ANF conferences. All members can propose new working groups and vote in or chair a working group.

Nonmembers may also attend ANF conferences for a nominal fee, although they are not permitted to vote.

The lack of a vote may not be critical, however. Brad Parker of FCR Software, Inc., who is also chairman of the ANF steering committee, said the goal is to form a consensus, leaving voting as a "last resort if the consensus-making process fails."

Parker said the ANF would like to remain a technology organization. "We'd rather not turn it into a big political mess," he said, "although that is often unavoidable."

Users already seem skeptical. "When the honeymoon is over in about a month," Motorola's Buchholz asked, "how committed are you guys to support the consensus of this group?"

© ANF: (415) 750-8351.

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Homeless

Continued from page 19

about 20 users on the ninth floor of the building.

A 12-slot version on the mezzanine level will support the homeless shelter's Automated Accounting Job Training Program, which is a daytime project that uses computers to teach veterans job skills in accounting, as well as resume presentation, word processing, spreadsheet applications and interview techniques.

The PCs will be outfitted with unshielded twisted-pair Ethernet adapter cards donated by Racal InterLan, Inc.

And Banyan Systems, Inc. has offered up two file servers as well as the latest 5.50 release of its VINES operating system software.

One server will be connected to each hub, with the two floors connected by an Ethernet link running in the building's riser.

Racal-Datacom is also providing its Simple Network Management Protocol-based Racal Management System net management software package to monitor and control the network.

"The most immediate benefit of the network will be seen in the job training program," Herlihy said.

"By networking the PCs, we can increase their viability in a training environment because they're sharing the same network software, allowing classes to be taught as a group," he added.

The next phase of the project is to build departmental LANs on each floor of the nine-story building, interconnecting those LANs via a series of routers across a fiber-optic backbone.

The shelter's network is also serving as a pilot project for what will hopefully be a network of interconnected veterans shelters across the country, according to Herlihy.

Discussions are currently under way in Los Angeles, Miami and New York to build shelters similar to the one here.

In order to meet those goals, however, the shelter must rely on further equipment donations by local businesses.

"We're not in the position to do a lot of purchasing since our government grants are geared toward direct delivery of service to the vets," Herlihy said. "Cash donations allow us to exist and expand, but the donation of technology will really push us forward and help us deliver those services," he added.

Herlihy also pointed out that it is the acquisition of technology that will allow the shelter to get closer to its ultimate goal.

"Our goal is to go out of business, and the first step toward reaching that goal involves the use of information," he said. "That's what all this hardware and software comes down to — information processing."

The homeless

According to Bob Herlihy, the business of providing for the homeless has become one of the largest hospitality industries in the U.S., with statistics showing that one-third of all the homeless people in the country are veterans.

BRIEFS

Continued from page 19

family of local-area net products. Like all X-DDI products, the new X-DDI-16P concentrator can support fiber and copper Fiber Distributed Data Interface connections at 100M bit/sec.

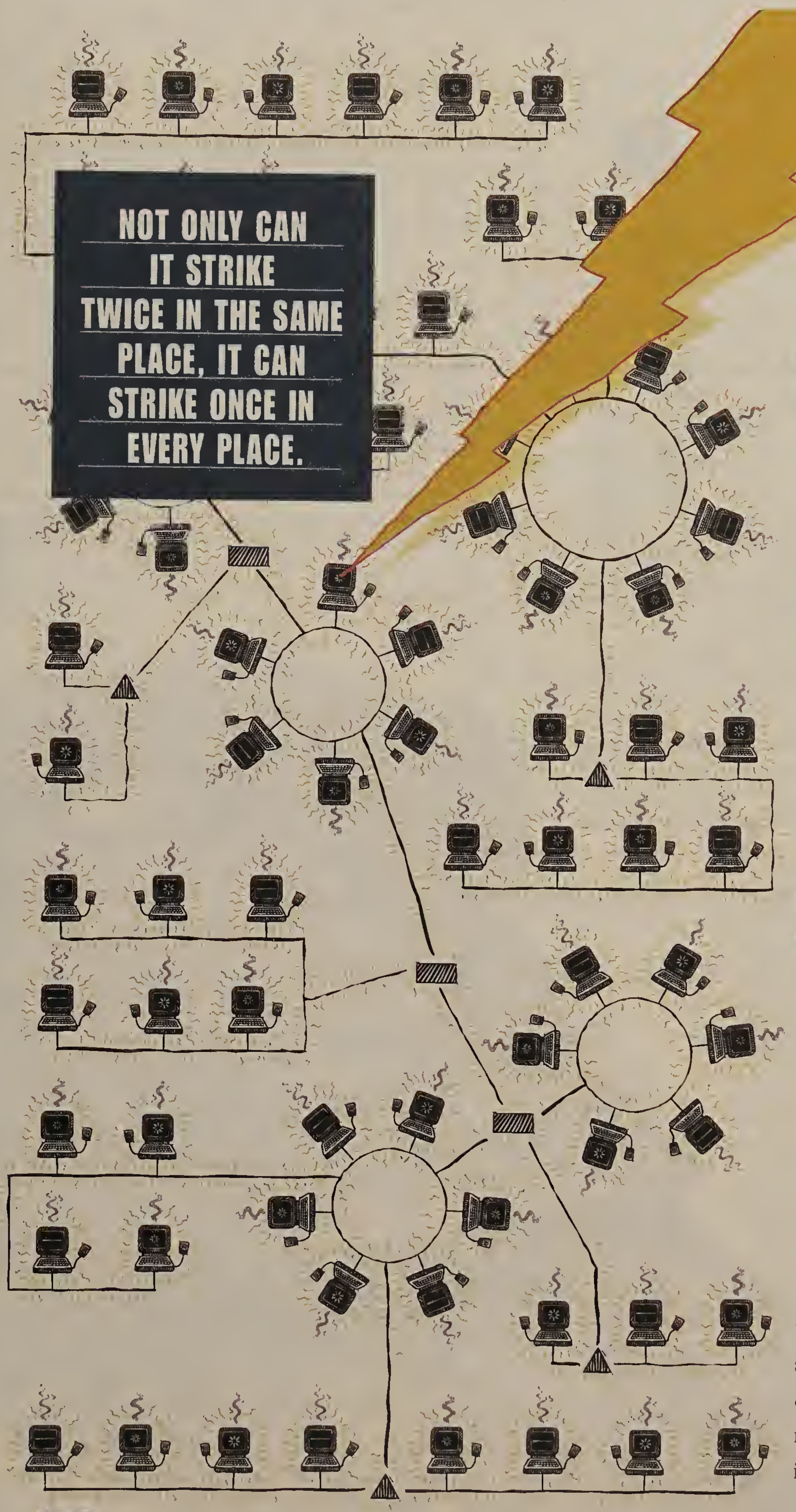
Four interface cards are available for the hub, which the user can mix and match to support as many as 16 ports. Available cards include an eight-port unshielded or shielded twisted-pair card; a four-port multimode fiber card; an eight-port multimode fiber card; and a four-port single-mode card.

The X-DDI-16P, which supports the Simple Network Management Protocol, will be available in the third quarter. Pricing ranges from $650 per port in a fully copper configuration and $1,150 per port when configured with 16 fiber ports.

Northern Telecom: (708) 967-6600.

Cabletron Systems, Inc. and **Tekelec, Inc.** will form a new consortium within the University of New Hampshire's InterOperability Lab to test and develop Asynchronous Transfer Mode (ATM) products and technology. The two companies made donations to the school that will be used to hire a technical director for the new lab as well as fund a student research program. The lab will allow ATM vendors to test and develop products in conjunction with the university.

3Com Corp. released its fourth-quarter results, which showed record sales of $167.5 million and record earnings per share of $.40. This represents increases of 33% and 111%, respectively, over figures from the same quarter last year.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Circle Reader Service #11

User to carry data over its cable TV net

BY BILL BURCH

The company that brought you *Gilligan's Island,* monster truck pulls and CNN's Peter Arnett live from Baghdad now wants to carry your LAN traffic, too.

Data over cable is here, beginning with a New York company that is now carrying Ethernet traffic over its cable television network. Using equipment from Digital Equipment Corp., Cablevision Systems Corp. of Woodbury, N.Y., is ferrying files for users in Long Island and Yonkers, N.Y. And across the country, cable companies are installing fiber rings for advanced networks that will one day provide nationwide data services.

Even though Cablevision Systems is not yet marketing the data services some of its coaxial networks can carry, the company is close to signing its first couple customers for local-area network interconnection, according to Wilt Hildenbrand, Cablevision's vice president of technology. With Yonkers and Long Island under its belt, Cablevision Systems now has its sights set on rolling out a LAN connection service in New York City within two years.

With its network, the company is able to offer users a full 10M bit/sec channel vs. the 1.5M bit/sec limit of the T-1 lines offered by traditional telephone companies.

Cablevision's alternative access division has been using fiber to provide long-distance bypass and high-speed data lines in New York City, and some of that traffic may be shifted to coaxial, if the business case warrants it. For its new data services, the company has had to consider such issues as traffic patterns in deciding whether to go with fiber or coaxial.

"If the usage was such that having access to a number of locations on the coaxial network was advantageous, then, yes, there would be a big price advantage over having to build dedicated networks down to a lot of locations," Hildenbrand said.

For users, the data service can substantially extend the reach of a LAN.

See Cable, *page 24*

BRIEFS

MCI Communications Corp. last week announced it received a five-year, $15 million contract from Holiday Inn Worldwide for a very small aperture terminal network linking sites throughout Latin America.

The carrier will install Hughes Network Systems-provided VSATs and use a space segment from Comsat World Systems Division to build the net, which will link about 150 Holiday Inn properties in 13 Latin American countries. The VSAT network will support two-way communications between the hotels and the company's Atlanta-based Holidex global reservation system. It will replace the user's analog private-line network.

Sprint Corp. last week said Grumman Corp. has extended by three years a contract with the carrier for a variety of network services, including toll-free service.

The aerospace firm, which initially used Sprint for a small number of its 800 lines, has committed to roughly triple its use of the carrier's toll-free offerings. Sprint will continue to provide its Virtual Private Network voice net and data links.

Southwestern Bell Corp. last week announced wider availability of a call forwarding feature that enables users to activate or deactivate the service, or redirect calls from any push-button phone.

The feature, dubbed Remote Access to Call Forwarding, will now be available to users in Oklahoma City and Tulsa, Okla., as well as in Dallas/Fort Worth. The carrier already offers the capability in Houston and San Antonio, Texas, and in St. Louis. It plans to extend it to Little Rock, Ark., Topeka and Kansas City, Kan., and Kansas City, Mo., by year end, pending regulatory approval.

Southwestern Bell charges $2.75 per month for Remote Access to Call Forwarding.

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Bellcore moves ahead with PCS numbering

Plans 500 area code for wireless services.

BY BILL BURCH

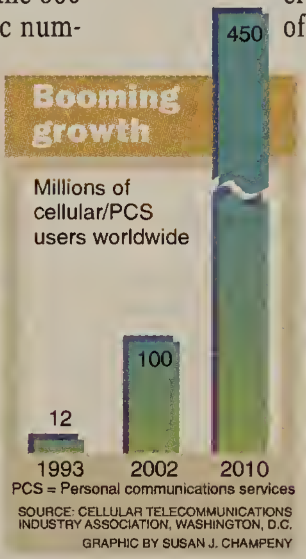
Washington, D.C.

Barring FCC objections, Bellcore next month will begin assigning numbers for personal communications services (PCS) in the 500 area code for nongeographic numbering.

Carriers have been pushing Bell Communications Research for the numbers, saying they need them urgently for planned PCS offerings. Eleven companies, including AT&T, Bell Atlantic Mobile Systems, Inc., McCaw Cellular Communications, Inc. and Sprint Corp., have asked Bellcore, which serves as the North American Numbering Plan administrator, to pass out the numbers as soon as possible.

Because many carriers are still in trials for wireless PCS, the first of these new 500 numbers will likely go to users of so-called one-number services, such as AT&T's EasyReach. Typically, these services provide a single phone number through which a user can be reached via call fowarding at any location.

Under the Bellcore plan, carriers will get blocks of numbers in the 500 area code that they can assign to users for PCS and other services. The area code is not geography-specific, meaning it denotes access to a set of services rather than a region, such as New York's 212 area code.



PCS = Personal communications services

SOURCE: CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION, WASHINGTON, D.C.

GRAPHIC BY SUSAN J. CHAMPENEY

Bellcore plans to begin assigning the numbers according to an unfinished plan developed by the Industry Carriers Compatibility Forum. The forum has been working on the plan since March 1992 and expects to complete its work by November.

Bellcore hopes to use a version of the plan that is "99% complete," according to forum Co-Chairman Hugh Burrows, network performance director at the Stentor Resource Center in Ottawa.

If Bellcore begins assigning numbers in August, the carriers would get their numbers just over three months ahead of schedule. Whether PCS providers will be ready for the numbers is another matter.

AT&T is in the midst of a 36-month PCS trial in Atlanta, Boston and Los Angeles. Its main concern right now is not numbers but waiting for the Federal Communications Commission to assign spectrum for the service, said Ralph Dobriner, a spokesman for AT&T's PCS business unit.

"Certainly, we're interested for the long term, and others are too," he said, adding that AT&T isn't ready to begin providing PCS today.

AT&T has to determine what services it will offer and which part of the company will handle the new business. The carrier is negotiating with McCaw Cellular Communications for a piece of that company and must factor the acquisition into its business plans.

At the FCC, staffers have been dubious about the pressing need for numbers. Bellcore made public its intentions to assign the PCS codes in January. But after hearing Bellcore's case in April, the commis-

See Bellcore, *page 24*

Southwestern Bell cuts frame relay prices

BY BOB WALLACE

St. Louis

Southwestern Bell Corp. last week detailed rate reductions for some elements of its frame relay service and said it has received regulatory approval to link the service with interexchange carrier frame relay offerings.

Southwestern Bell's Frame Relay Service is supported by Northern Telecom, Inc. software on central-office switch adjuncts located throughout Arkansas, Kansas, Missouri, Oklahoma and Texas.

The carrier supports access links, port connections and permanent virtual circuits (PVC) in three flavors: 56K bit/sec, 384K bit/sec and 1.536M bit/sec.

Access line and port connection prices at 56K and 384K bit/sec have not changed much, but prices for the service at 1.536M bit/sec have fallen by an average of 17% to 18%.

With the old rates, a user that bought a 1.536M bit/sec access link and port connection paid roughly $850 a month. Now a user will pay about $575 for the same arrangement.

Southwestern Bell has also slashed PVC rates. The price of a 56K bit/sec PVC dropped from $45 to $8 a month, while a 384K bit/sec PVC plummeted from $60 to $20, and a 1.536M bit/sec PVC dropped from $160 to $50. All items carry a onetime installation charge ranging from $2 to $46.

Under the carrier's new pricing plan, a user building a six-site frame relay network at 56K bit/sec would pay a total of $1,135 a month, an 18% reduction. The total monthly charge at 384K bit/sec is $2,068, a reduction of 23%. At 1.536M bit/sec, the monthly cost is $4,198, a 45% reduction.

In addition, Southwestern Bell received approval from the Federal Communications Commission to link its frame relay service with offerings from long-haul carriers.

Tom Prost, frame relay service marketing manager for Southwestern Bell, said his company has discussed linking its service with offerings from other carriers, but he stressed that there are no formal plans to support such a deal.

Users can opt to build regional frame relay networks with Southwestern Bell's frame relay offering used at both ends of the link or national networks that use frame relay services from Southwestern Bell and a local telephone company. ☐

Southwestern Bell's Frame Relay Service is available now in:

Arkansas
  Little Rock
Kansas
  Kansas City, Topeka, Wichita
Missouri
  Kansas City, St. Louis
Oklahoma
  Oklahoma City, Tulsa
Texas
  Austin, Dallas, Fort Worth, Houston, San Antonio

AT&T worker arrested in extortion plot

BY BILL BURCH

An AT&T employee and another man were charged earlier this month with attempting to extort $1 million from the company in exchange for information on the sale of company secrets to competitors.

Louis Pacich, 30, a project coordinator with AT&T Business Communications Services, and Richard Vignevic, 42, a self-employed contractor, allegedly offered to provide AT&T officials with information on employees selling computerized customer records to a rival long-distance carrier in exchange for the $1 million. The two were nabbed June 9 when they attempted to pick up a $500,000 down payment on the information at a Maryland motel.

According to press reports that were confirmed by AT&T, the extortion attempt began in late May when AT&T received a call warning that someone was attempting to sell information to a rival and offering to mail proof.

Two days later, AT&T received a Federal Express package with computerized customer records and an audio tape containing a ransom demand. In return for $1 million, the tape said details would be provided on the sale of the company records.

AT&T was told to signal its assent to the deal by placing a classified advertisement in *The Washington Post.*

After the company received a second tape with directions on how to drop off the money, a federal agent delivered a duffel bag with cash to a motel room in Mitchelville, Md.

Vignevic was arrested after a Federal Bureau of Investigation agent spotted him climbing into a back window of the room. Pacich was seen driving from the motel and arrested a short distance away.

The two are free on bail following an initial appearance before a Baltimore judge.

In his work, Pacich had access to information on AT&T's commercial accounts similar to that sent to the carrier during the case, according to court documents. Pacich, who worked in Piscataway, N.J., had been with AT&T since December 1989.

The FBI investigation has not uncovered any evidence of AT&T employees leaking secrets, a bureau spokesman said. AT&T declined comment on the investigation other than to confirm accounts of the case.

Cable

Continued from page 23

DEC's "Digital Channel" technology can provide a 10M bit/sec Ethernet channel over 70 miles, as compared to Ethernet's normal limitation of 2.2 miles.

Along with Cablevision, such companies as Times Mirror Cable in Irvine, Calif., and Greater Media Cable in Worcester, Mass., will be using the DEC equipment to carve off a piece of the LAN interconnection market. That may or may not please competitive access providers (CAP), but DEC prefers to see the CAPs as a potential client through cable company-CAP alliances.

DEC's David Rosi, the company's director of video and interactive services, points out such alliances are already happening. For example, Teleport Communications Group is owned by Comcast, Continental Cablevision, Cox Enterprises and Tele-Communications, Inc. – all cable companies.

"[CAPs] clearly have the lion's share of connections to the business community," Rosi said. But when it comes to offering data services in the future, the companies will be picking either Fiber Distributed Data Interface over fiber or DEC's Channelworks and Ethernet over coaxial, Rosi predicted.

Looking beyond Ethernet, cable companies have a grander vision of their place in the data universe. Ultimately, the companies would like to own a unified national network that can provide data services.

Evidence of that vision can be found at Cable Television Laboratories, Inc. in Boulder, Colo., where work is proceeding on setting aside a chunk of the cable spectrum for data transmission.

The laboratory is close to picking out a block of spectrum, according to Stephen Dukes, the lab's vice president of advanced network development. Once the block is picked, a draft proposal goes out for comment; the final choice will likely be made by the end of the year.

That spectrum will support data services in two speed ranges. On the low end, the networks will carry data at 19.2K up to 1.5M bit/sec. High-speed traffic, such as Motion Picture Experts Group 2-encoded video, will run at 10M bit/sec. Eventually, cable companies will offer variable bit rate services, according to Dukes.

For distribution, the new services will run on regional fiber rings, some of which are already in place. Regional rings now under development or in operation belong to Adelphia Communications in Vermont, Continental Cablevision, Inc. in Boston, Rogers Communications, Inc. in Canada, Tele-Communications in Englewood, Colo., Time Warner Cable in Orlando, Fla., and Viacom Cable in the San Francisco Bay area.

Eventually, the regional rings will be interconnected to form a national network that could take advantage of cable's high bandwidth, Dukes said.

BRIEFS

Continued from page 23

Motorola, Inc. has developed a new paging protocol called Flex, which supports 6.4K bit/sec, an improvement over current paging protocols – Post Office Code Standardization Advisory Group and Golay (named after a scientist) – that support a maximum speed of 1,200 bit/sec.

Several vendors, including PacTel Corp. subsidiary PacTel Paging, the Paging Network, Inc., Glenayre, Inc. as well as BellSouth Corp. subsidiary MobileComm, last week said they plan to support Flex in their service or equipment offerings.

Motorola, which will introduce Flex pagers, also expects to see Flex integrated into its Electronic Mail Broadcast to A Roaming Computer one-way messaging system.

Boston University, Harvard University and the Massachusetts Institute of Technology last week announced that **BBN Technology Services, Inc. (BBNTSI)** has assumed responsibility for activities of the New England Academic and Research Network (NEARNET).

BBNTSI is a wholly owned subsidiary of Bolt, Beranek and Newman, Inc.

NEARNET is a large regional data network that is part of the Internet. It lets users exchange electronic mail and access remote computing resources, databases and information on the Internet.

MOBILE COMMUNICATIONS

Start-up fields pack for wireless connectivity

BY ELLEN MESSMER

Cambridge, Mass.

Start-up MODA Systems, Inc. last week introduced Via/400, client/server connectivity software that lets DOS-based hand-held computers share data with IBM AS/400s over wireless networks.

MODA's technology tackles the problem of bandwidth constraints in wireless communications using two features – data compression and a filtering mechanism for extraneous data.

The client portion of Via/400 can be loaded onto any DOS-based portable device, such as a pen-based computer or digital palette. The server portion, which supports up to 28 clients, runs on a personal computer that is equipped with Application System/400 terminal-emulation software and linked to an AS/400.

The client software gives the mobile user remote control of the PC for access to the AS/400.

Via/400 software allows mobile users to communicate with the PC at distances of up to 1,000 feet using the 900-MHz spread-spectrum bands. It supports both local- and wide-area connectivity using the Mobitex packet data service.

RAM Mobile Data, Inc. provides the U.S.-based Mobitex service, but there are other Mobitex service providers operating in Europe, as well.

The MODA software has been beta-tested at a number of sites, including Warwick, R.I.-based A.J. Oster, Inc., a manufacturer and distributor for the brass and copper industry.

"It worked well," said Tom Tranghese, MIS manager at the company. He said the beta test was carried out in the company's warehouse, where inventory workers input and downloaded data into pen-based computers.

Since usable data rates for wireless communications are low, the MODA software seeks to get the most out of what is available by compressing the data before transmission.

"It can compress data at up to 100-to-1," Robert Goldberger, MODA's chief technical officer, said of the software's data reduction algorithm. "The actual rate is typically 30-to-1."

Transmissions average about 240K bit/sec for spread-spectrum radio devices and about 8K bit/sec using Mobitex.

The Via/400 software also has a filtering mechanism designed to block the transfer of extraneous information, such as scrolling screen menus, from the PC to the hand-held device. "It doesn't send the screens; it sends the application data," Goldberger said.

"The first time, the system doesn't know what to screen; it's dumb," he said. But the system records the most frequently used screen information and, after seeing it about a dozen times, filters it and blocks it from being transmitted. The filtering cuts down on packet data transmission costs.

MODA represents one of the earliest entrants into the wireless connectivity software market, said Roberta Wiggins, an analyst at Boston-based consultancy The Yankee Group. "But most of the developers will surely incorporate these features," she noted. "This is a new market, and there's room for vendors like this."

The MODA client software is available either on Personal Computer Memory Card International Association card or floppy disk for $1,595, while the server software is available for $1,295 on floppy disk. MODA also plans to market its software to value-added resellers and systems integrators.

©MODA: (617) 494-0402.

Bellcore

Continued from page 23

sion's staff said it wasn't convinced of the matter's urgency.

Faced with Bellcore's plan to speed up assignment of the numbers, the FCC will have to decide whether to let Bellcore go ahead or ask the research consortium to wait for guidelines from the Industry Carriers Compatibility Forum, said Alan Feldman, deputy division chief of the FCC's industry analysis division.

According to the Industry Carriers Compatiblity Forum, PCS is any service that has the combination of a mobile terminal, a roving user and cellular roaming or call forwarding.That hazy definition is spurring debate over who should get the new numbers. Right now, the FCC's broad goal is to make the numbers available as widely as possible, Feldman said.

If implemented, that broad definition of PCS and access to the 500 area code is good news for carriers that want to offer new wireline call management services.

For carriers, the new 500 area code means a much more robust version of the one-number service.

Bell Atlantic Mobile Systems has been combining cellular service with call management in Pittsburgh. The carrier has been operating off of Bell Telephone Co. of Pennsylvania's advanced network platform to provide call management services.

Bell Atlantic Mobile Systems finishes up the Pittsburgh trial on Aug. 31.

BRIEFS

Ontos, Inc., a Burlington, Mass., object database vendor, has formed a joint marketing agreement with **Cincom Systems, Inc.**, a Cincinnati vendor of SQL relational database systems. They will jointly market the Ontos DB database as well as its development tools and Cincom's Supra Server.

Keyfile Corp., a Nashua, N.H., document management software vendor, has formed a Professional Services Division to provide consulting and systems integration services to the company's users, resellers and distributors. Roger Sullivan, a former BIS Strategic Decisions vice president, will be the new organization's general manager and a vice president of Keyfile.

Cross Access Corp., based in Oak Brook, Ill., has announced a Microsoft Corp. Open Database Connectivity driver for its CrossAccess data access product line.

Cross Access: (708) 684-2345.

Oracle Corp., a Redwood City, Calif., database software vendor, posted fiscal 1993 revenue of $1.5 billion, up 27% from last year's $1.18 billion in revenue. Earnings jumped to $142 million — before an accounting adjustment in the first quarter — more than double the $62 million in earnings last year. For the fourth quarter ended May 31, revenue grew 31% to $473 million from $360 million in the corresponding quarter last year. Earnings for the fourth quarter were $69 million, more than double the $29 million recorded in last year's fourth quarter.

Sybase, Inc., an Emeryville, Calif., database software vendor, announced that it was part of a vendor team that won a recently awarded Air Force Computer Acquisition Center contract worth up to $149 million. The five-year contract calls for Sybase to provide its System 10 products, including SQL Server. The databases will run on a net designed to transition the operations of the armed forces, the Internal Revenue Service and other civilian agencies from host-based systems to client/server systems.

PeopleSoft, Inc., a Walnut Creek, Calif., human resources client/server application vendor, has announced an enhancement to its Human Resource Management System application as well as alliances with four vendors that will integrate their products with those of PeopleSoft.

PeopleSoft has added a Position Management component that enables users to organize their human resource system by position instead of by employee. PeopleSoft's new partners are: Federal Liaison Services of Dallas, a payroll tax filing system maker; MicroTrac Systems, Inc. of Dedham, Mass., which makes a resume scanning product; Talx Corp. of St. Louis, which sells voice response systems; and Wyatt Software, a Lake Oswego, Ore., vendor of a pension administration system.

PeopleSoft: (510) 946-9460.

The **Healthcare EDI Corp. (HEDIC)** has received a grant from Becton Dickinson and Co. to update

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Microsoft exec details groupware strategy

Company to build messaging APIs into apps.

BY BOB BROWN

Atlanta

Don't expect to see Microsoft Corp. rolling out a clone of Lotus Development Corp.'s Notes groupware product anytime soon.

Microsoft plans to attack the groupware market but will come at it from a different direction than Lotus, according to Tom Evslin, who was recently named general manager of Microsoft's Workgroup Division.

Instead of launching a stand-alone product, Microsoft will groupware-enable existing products by building in new application program interfaces (API), Evslin said. Unlike Lotus, Microsoft views groupware not as a single product, but rather as a host of applications designed to collaborate, he said.

This is a harder sell than a shrink-wrapped offering, Evslin said. "Our belief is that users need to continue using the applications on their desktop today and that those [applications] need to be group-enabled," he said. "It's a sound strategy that we just need to articulate better."

It is also a strategy that Lotus is embracing to some extent, according to company officials. Although Lotus has come out with a dedicated groupware offering, it is extending the product to be used in both Notes-centric and application-centric environments.

But Evslin said Microsoft's view of groupware differs from Lotus' in other ways. For example, Microsoft will focus on both unstructured and structured applications, whereas Notes is largely focused on unstructured applications. Structured applications refer to those typically supported by relational databases, such as transaction processing applications, whereas unstructured applications are more ad hoc in nature, such as project management.

Microsoft's strategy for groupware-enabling applications is consistent with its general strategy for mail-enabling applications. The company next year plans to build its own Messaging Application Programming Interface and the X.400 Application Program Interface Association's Common Messaging Call APIs into Windows, he said.

"The proper place for messaging APIs is in the operating system," Evslin said. "Mail-enabling an application might mean doing as little as adding a SEND verb to the menu, whereas group-enabling an application would go beyond that so you could group-edit a word processing

See Microsoft, *page 26*

> "Mail-enabling applications might mean doing as little as adding a SEND verb to the menu, whereas group-enabling the application would go beyond that, so that you could group-edit a word processing document, for example."

Tom Evslin
General manager, Workgroup Division
Microsoft Corp.

Business Objects rolls out Mac pack

BY BOB BROWN

Menlo Park, Calif.

Business Objects, Inc. this week will announce an Apple Computer, Inc. Macintosh version of its BusinessObjects database access software.

The Macintosh community is a natural fit for Business Objects, which advertises its products as being designed to provide nontechnical users with intuitive access to corporate data. The software was previously available to DOS and Microsoft Corp. Windows users.

"The Macintosh is becoming a lot more common in corporatewide information systems, and users of these Macintoshes want access to corporate data," said Perry Mizota, vice president of marketing at Business Objects. "Now we're able to address that market."

MIZOTA

BusinessObjects is client software designed to present information from standard databases to end users in their own vocabulary, or what Business Objects calls the user's "universe," rather than in complex tables. Universes consist of sets of object-like data.

The client component handles graphical presentation of the data, as well as report and graph generators. The data definitions reside in a data store on the database server.

BusinessObjects offers a module for database administrators designing end-user universes. Administrators work with users to define these data views, and it is here that administrators can set up rules by which users can access data.

The new Macintosh version of BusinessObjects has been written to Macintosh application program interfaces to ensure an intuitive look and feel, Mizota said.

The end-user version of BusinessObjects for the Macintosh, dubbed the User Module, costs $595. The database administrator version, called the Manager Module, is priced at $3,495.

The software can be used in any network environment supported by the targeted databases. BusinessObjects currently supports Oracle Corp. and Sybase, Inc. databases.

Business Objects plans to deliver Unix clients in the fall, according to the company.

©Business Objects: (415) 854-1500.

PAPERLESS OFFICE

Defense to issue electronic blueprints

BY ELLEN MESSMER

Washington, D.C.

If tests conducted this summer with industry are successful, the Department of Defense plans to issue blueprints to project bidders in a digital format called Initial Graphics Exchange Specification (IGES) rather than microfiche, as is the case today.

Switching to IGES, the ANSI standard for a common computer-aided design and manufacturing (CAD/CAM) systems format, is expected to lower costs for both the military and its suppliers through further automation of parts production.

The military currently issues blueprints on microfiche attached to old-style computer cards, said George Elwood, senior systems engineer of the Computer-Aided Acquisition and Logistics Support (CALS) test bed at Wright-Patterson Air Force Base. "It often costs more to produce the card than it costs to buy the part," Elwood said.

The microfiche cards are also costly to industry bidders. "The machinist on the machine floor has to send them to a blueprint shop to blow them up," Elwood said.

The Defense Department would like to have IGES electronic blueprints used in place of the paper-based blueprints, said Nick Mitschkowetz, raster analyst for the CALS test bed at Lawrence Livermore National

See IGES, *page 27*

Fujitsu makes allies to push imaging

BY WAYNE ECKERSON

San Jose, Calif.

In an effort to grow the work group imaging market, Fujitsu Computer Products of America last week announced an alliance with document management vendors to certify that their imaging software is compatible with Fujitsu scanners.

Vendors participating in Fujitsu's ScanPartner Solutions program include Caere Corp., Keyfile Corp., PaperClip, Inc. and Watermark, Inc.

The ScanPartner Solutions vendors will test and optimize their document management software to ensure that it works with Fujitsu's ScanPartner 10 scanner. The ScanPartner 10, which can scan 10 pages per minute, is designed for small work groups of two to five people.

The companies will jointly market, sell and support Fujitsu scanners and compatible software to distributors.

"The ScanPartners Solutions program is trying to address the obstacles that are preventing the market for work group imaging from really taking off, namely the complexity of choices and incompatible hardware and software," said Rita Hernandez, Fujitsu's director of marketing for image products.

Hernandez said the ScanPartners Solution program provides users with a simple menu of choices for implementing a work group imaging system and ensures that products from different vendors will work together. She said she hopes the hardware/software packages will encourage more users to pilot-test or employ work group imaging systems.

The ScanPartners Solution program enables users to select the work group imaging package that best meets their needs. She said each software vendor in the alliance offers different document management features.

Caere specializes in optical character recognition technology, while PaperClip supports image-enabled applications. Watermark uses various electronic mail packages to distribute images, and Keyfile supports strong work flow capabilities, Hernandez said.

The software is available now for stand-alone personal computers and local-area networks. Hernandez said the ScanPartners Solution packages cost less than $3,000 for a start-up single-user version.

©Fujitsu: (408) 432-6333.

Microsoft

Continued from page 25

document, for example."

Microsoft's vision of mail-enabled applications extends well beyond traditional messaging. For example, the company will look to help users replace traditional 3270 mainframe access techniques with message-based personal computer access to host data, Evslin said. This could serve as a migration path to true SQL access to host data.

"Messaging is fast becoming something Microsoft is looking at across all of our divisions and product lines," he said.

Microsoft's groupware- and mail-enabled application strategy will be supported by the company's investment in products for the messaging infrastructure, as well. The firm is readying a Windows NT-based messaging server, dubbed the Enterprise Messaging Server (EMS), for next year that will be designed to provide the scalability and manageability needed to support enterprise mail-enabled applications (*NW*, June 21, page 6.

"We're encouraging users and developers to start building the first wave of mail-enabled applications for their existing mail systems," Evslin said. "EMS will then support an even more sophisticated set of applications later on."

Analysts said Microsoft's positioning in the mail- and groupware-enabled applications market seems solid." Applications should all have messaging in them," said Nina Burns, president of Creative Networks, Inc., a Palo Alto, Calif., consulting firm. "The important thing to always keep in mind is that the applications must suit the way people really work."

BRIEFS

Continued from page 25

HEDIC's electronic data interchange Trading Partner Profile Library of health care companies. The funds will support a telephone survey of HEDIC members and other health care trading partners to assess their EDI transaction set usage.

HEDIC: (501) 661-9408.

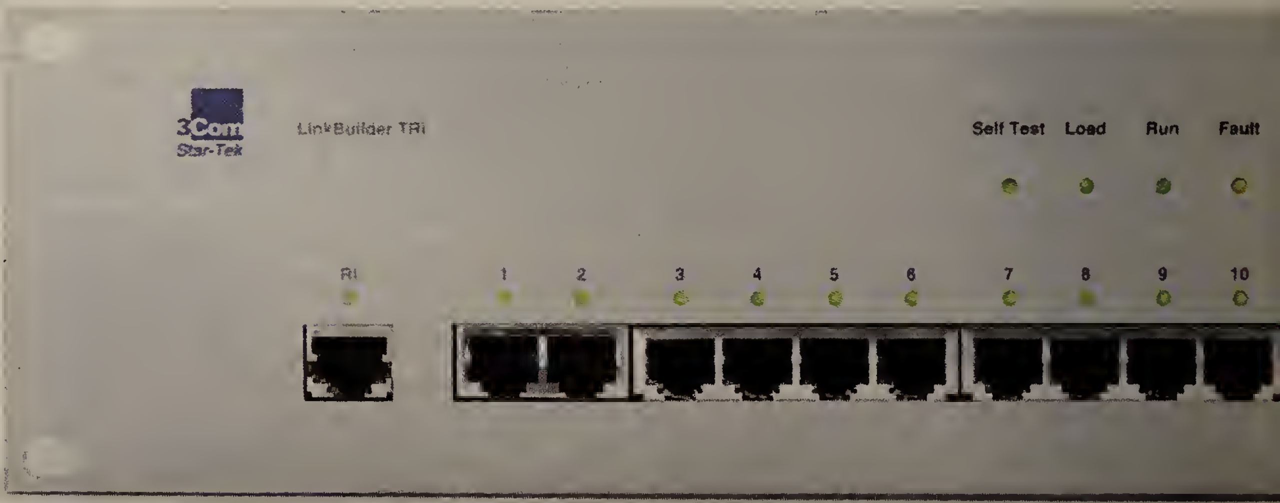
MCI Communications Corp. has announced the MCI Mail Gateway for QuickMail, CE Software, Inc.'s local-area network electronic mail package. The gateway will let QuickMail users exchange messages over MCI's public messaging net with other subscribers to the MCI net. MCI Mail Gateway for QuickMail costs $295 and will ship in July.

MCI: (800) 444-6245.

Sprint Corp. has announced several enhancements to its SprintMail electronic messaging service designed to meet the needs of multinational users. A new feature enables users of private electronic mail systems connected to SprintMail to identify their native country in the address field of electronic messages.

Sprint also announced Spanish- and French-language versions of its personal computer SprintMail access software.

It's a Token Ring hub. It never st
And it warns of network trouble.



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IGES

Continued from page 25

Laboratory. Mitschkowetz noted that the Sacramento Air Logistics Center recently tested IGES, issuing the first electronic requisition with an all-electronic blueprint. The results of the test will be published in the fall.

IGES could make production assembly more simple. For example, it could make it possible to feed IGES part information directly into milling machines.

"You can take an IGES file and go directly onto a tool path," Elwood pointed out.

This August, the Air Force CALS program office will begin a production test to see if multiple suppliers can create machine parts within acceptable tolerances using IGES.

Up to 100 companies, as well as a few military bases, will be selected to download a simulated bid package — such as a fan belt assembly — in IGES form off the Internet or a military bulletin board.

The test participants will be asked to create at least one machine part from the IGES electronic blueprint. This fall, the IGES-made parts will be collected and assembled to see if they fit together within accepted tolerances.

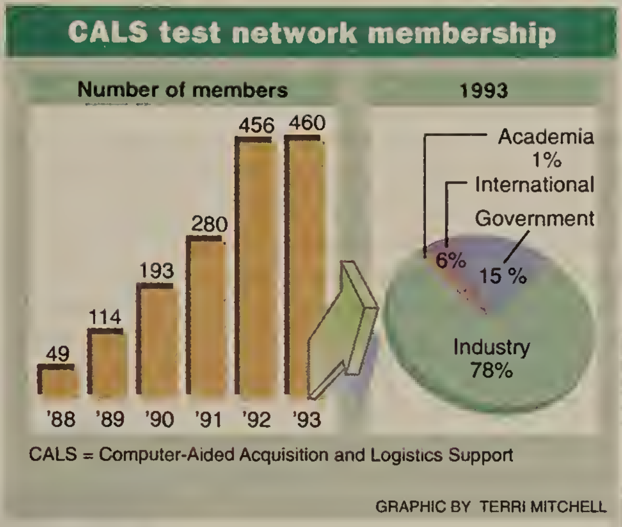
The IGES test has drawn interest from a wide variety of companies, including Northrop Corp.; Daimler-Benz AG in Germany; Rolls Royce Motor, Inc. in the U.K.; Moore Quality Tooling in Centreville, Ohio; Ethicon Eno-Surgery, Inc., a surgical equipment supplier in Cincinnati; and the University of Tennessee, which is coordinating with small businesses in the area for the IGES test run.

If the production test is successful, the Department of Defense will likely begin issuing bids in IGES format.

IGES, already included among the many Department of Defense CALS standards, was recently approved as a standard for the civilian side of the federal government, as well.

The National Insitute of Standards and Technology (NIST) issued IGES as a Federal Information Processing Standard this April. A mandatory purchasing requirement for IGES is planned to take effect in April 1994.

Federal agencies will still be able to buy proprietary CAD/CAM packages, but they will have to include the IGES file format.



CALS = Computer-Aided Acquisition and Logistics Support

GRAPHIC BY TERRI MITCHELL

NIST is also setting up a conformance test and certification program for vendors' IGES software at its Gaithersburg, Md., headquarters.

The NIST conformance will be more rigorous than the simple visual check on software performed by engineers on the CALS test network, which now has 460 members (see graphic, this page).

CMS' Mailplus makes E-mail easier

BY BOB BROWN

Southfield, Mich.

Computer Mail Services, Inc. (CMS) this week will announce MailPlus, a Microsoft Corp. Windows E-mail client designed to provide users with a common interface to different public electronic messaging services.

MailPlus is designed to eliminate the need to toggle between separate applications, including separate address books, to send mail via the various electronic services. The software automatically consolidates the addresses of all electronic mail correspondents in a single address book under user-defined aliases.

WONG

"Users don't want to have to deal with different applications to get to their messages," said Lih-Tah Wong, president of CMS. "That's like using different colored phones to call different people."

The product will initially support an interface module to MCI Communications Corp.'s MCI Mail service. The module is based on a mail exchange engine CMS developed for its existing local-area network gateway to the carrier service.

CMS plans to provide a module for CompuServe, Inc.'s CompuServe network module within 90 days and modules for other as yet unnamed carriers, Wong said.

The company also plans to provide modules for LAN-based E-mail systems, possibly including the Message Handling Service (MHS) and Simple Mail Transfer Protocol.

Other MailPlus modules could include those for facsimile and voice mail systems or services, Wong said.

CMS also plans to extend MailPlus to different platforms, although nothing has been finalized yet.

MailPlus with the MCI Mail module sells for $99.95 and is available now. A free upgrade to the CompuServe module will be available under this offer, and other modules will be available later, probably for under $100 each.

The software requires that users have a modem and Windows 3.1 or Windows for Workgroups.

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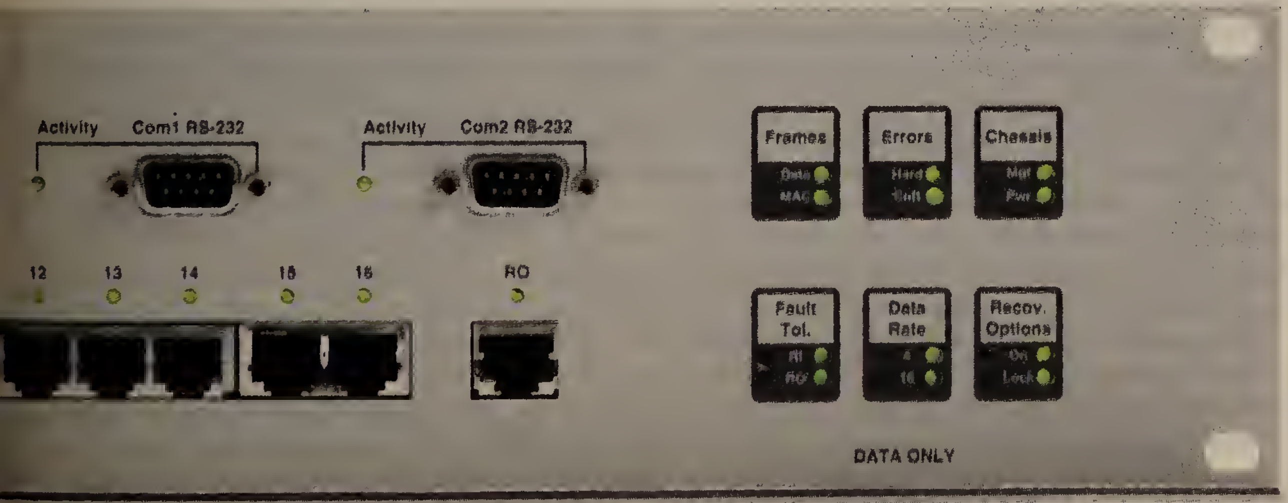

ps working. It prevents mistakes.
You do have to plug it in, however.

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Editorial

"Chance favors only the prepared mind."—Louis Pasteur

A few weeks ago, I discussed some issues network executives ought to address in strategic planning (June 14, page 36). To that list, I humbly append another item: preparing for migration of data traffic to the public network.

Many companies have already moved voice to virtual network services, which offer cost and manageability advantages. With the widening availability of frame relay, switched digital services and other advanced transmission options, even the most ardent private networkers are examining new ways to leverage the public net.

Establishing a virtual data network requires a careful assessment not only of the technical strengths and weaknesses of new services, but also an understanding of your organization's current and future needs.

How quickly is data traffic growing? What will your traffic mix be in a few years? Is security becoming a bigger issue? Is your company adding sites?

If data traffic is outstripping capacity on your private network, it might make sense to begin the migration by shifting some traffic to switched services rather than investing in equipment upgrades or new private lines. If your company is adding sites outside metropolitan areas, advanced services may not fit the bill because they're not always available.

To help you distill the appropriate private/public network mix, our feature this week highlights three users that have chosen different courses (see stories beginning on page 30). While the companies are moving at different speeds, they share concerns about public data services that are echoed by many of the other users I speak with each week.

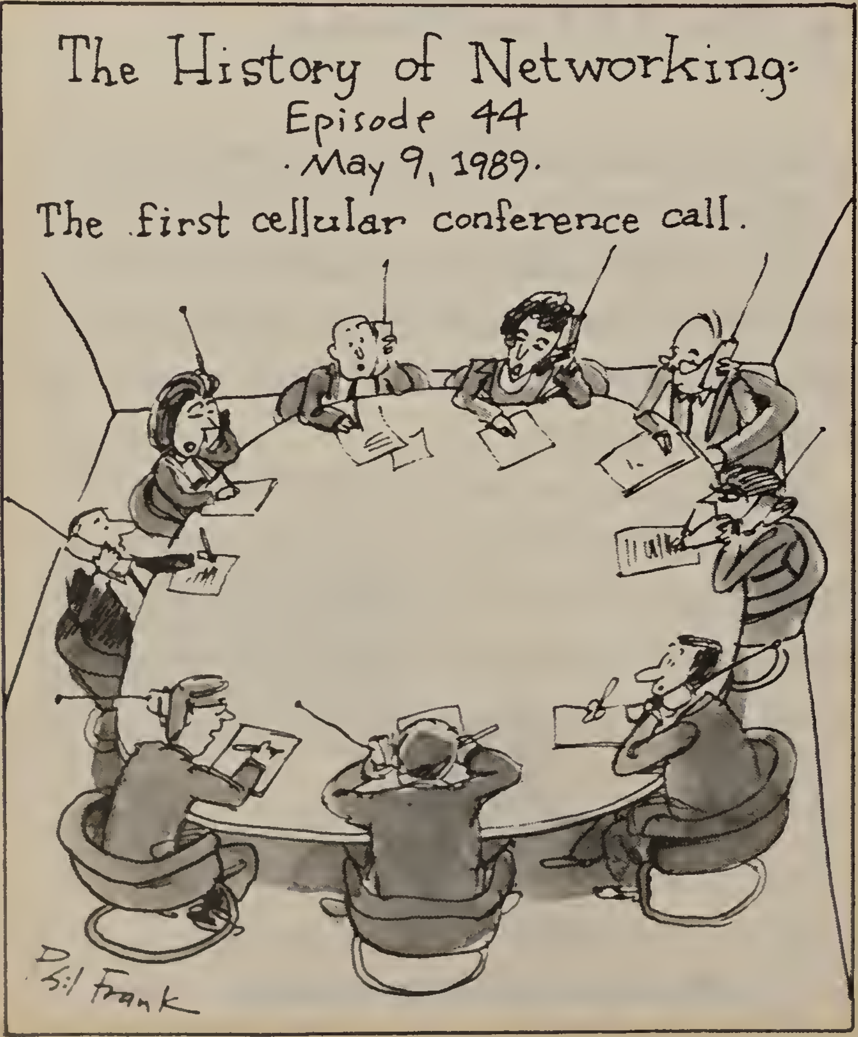
Chief among those are concerns about data security and manageability of the services, as well as the plodding pace of deployment in some service areas. That latter complaint is targeted mainly at local carriers that differ dramatically in their commitment to delivering next-generation services. Even when local carriers roll out new offerings, service names, pricing and management features vary by region — complicating the job of building a national network.

Since this migration will be one of the biggest decisions facing readers in the years to come, I'd like your views on the matter. What obstacles are blocking the migration of data traffic to the public network? What do carriers need to do? Let me know what you think.

JOHN GALLANT

Teletoons

FRANK AND TROISE


The History of Networking:
Episode 44
· May 9, 1989 ·
The first cellular conference call.
S/ Frank

REALITY CHECK

By Thomas Nolle

APPN brings SNA-like features to internetworking

You don't automatically think of IBM's Systems Network Architecture when you think of internetworking, but you should. Feature for feature, IBM's new twist to SNA — Advanced Peer-to-Peer Networking (APPN) — is at least a match for such internetworking favorites as Transmission Control Protocol/Internet Protocol and the newer Open Systems Interconnection internetworking protocols. However, there are two barriers to APPN's success: Users don't understand it, and IBM has forgotten the virtues of active third-party support.

APPN is unique among internetworking architectures in that it is based completely on connection-oriented data flow. This means a virtual circuit is set up between the connection originator and destination, and that trunk and node resources along the way are allocated to the session.

Because of this, APPN can establish network routes based on class of service and such parameters as delay, bit rate and error rate that the particular session expects and needs. No other internetworking architecture offers class-of-service routing because connectionless net services don't have fixed routes and can't support fixed allocation of resources.

APPN has some other traffic-handling benefits. Each network path in an APPN net has its own flow control, just as SNA has path pacing. The conditions on a given node-to-node path — including network delay, for instance — will cause APPN to adjust its rate of information flow for optimum performance. If information flow is degraded by conditions and excessive queuing results, path pacing will reduce the window size and flow rate across the affected link.

This pacing is tied to the traffic source, so congestion anywhere on the net can be quickly reflected back to the source to signal a flow reduction. In frame relay and future Asynchronous Transfer Mode applications, this means APPN can fully implement the explicit congestion notifications generated by networks. Of the net architectures today, SNA alone implements a response to frame relay's Backward Explicit Congestion Notification and Forward Explicit Congestion Notification (BECN/FECN). That is, while a router on a TCP/IP network would ignore a BECN/FECN, a router on an SNA net would issue a response.

The precise information flow control that APPN permits enables users to run network trunks at very high utilizations without undue congestion and performance degradation. Due to contention among users for network resources, most TCP/IP and other local-area network internet trunks show sharp increases in delay — and resulting reductions in performance — when network loading exceeds about 70%. SNA trunks, even older non-APPN ones, can be run at 90% utilization because they have resource allocation and traffic management mechanisms to reduce contention.

Higher trunk utilization means more traffic carried for the same network cost. Precise information flow control also lets APPN deliver very predictable connection performance, so users know just how long a remote print job will take on any give day.

Yet for all of its capabilities, APPN has its faults. Connection-oriented APPN, unlike its connectionless competitors, can't adapt instantly to net failures. As long as there is a path available from the source to the destination, TCP/IP will deliver the message.

With APPN, the failure of a route element means breaking the connection and setting it up again. IBM has recognized this deficiency and proposes to correct it in its release of APPN High Performance Routing, sometimes called APPN+. Specifications on APPN+ have just become available, and IBM is expected to include it in APPN license programs.

License programs are the real dark spot on APPN's future. While SNA has always been proprietary, today there are more network elements based on SNA than on any other standard. Most of this is due to a flourishing third-party market that grew out of IBM's approach to publishing SNA specifications.

IBM has kept that approach with APPN End Node specifications for user devices but not for the critical APPN Network Nodes (NN) that do the routing. For the NNs, IBM has established a licensing program that includes a $25,000-a-year Technology Offering, which provides trademark and patent licenses, and a $400,000-plus-royalties APPN NN Offering, which includes source code. Royalties on the latter, which a company selling an APPN NN must pay IBM for every unit sold, have been reduced recently.

But $400,000 is a large enough hurdle to keep many entrepreneurs out of the APPN market, and they are the ones who made technologies such as IBM 3270 emulation a big success. It was the license fees that prompted Cisco Systems, Inc. to propose an alternative to APPN, called Advanced Peer-to-Peer Internetworking (APPI).

Nevertheless, competition from TCP/IP or APPI can't kill APPN. More than half of the total data traffic carried on wide-area nets is SNA-based, so even if IBM doesn't rethink its APPN licenses, it is likely that APPN will play as large a role in internetworking as TCP/IP or OSI has. If IBM were to lower APPN license costs, third-party vendors could jump in with APPN node implementations that could make APPN the best internetworking solution available, even for companies without legacy SNA nets.

Think about it, IBM.

Nolle is president of CIMI Corp., a technology assessment firm in Voorhees, N.J. He can be reached at (609) 753-0004 or via MCI Mail at 349-5845.

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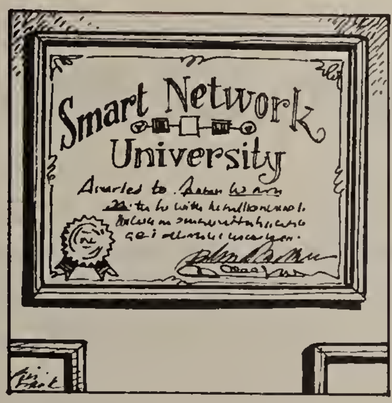
TECHNOLOGY ISSUES

By Paul Rostick

Network computing is the key

The hubbub surrounding client/server computing has obscured what should be the real goal for users: network computing. Users need ubiquitous, seamless, intelligent network computing, not hype-ridden, chaotic, primitive client/server computing. And it's the network manager's job to create at least the illusion of seamless network computing from the kludge of client/server computing.



The critical difference between true network computing and client/server computing is network intelligence.

In client/server computing, the network merely serves as a transport medium across which applications and data travel. All of the intelligence necessary for the applications to run on the network resides either in the applications or in various middleware tools.

By contrast, in true network computing, the net would be intelligent, self-aware and self-managing. Because the intelligence resides in the network, it doesn't have to be built into applications.

So what is the problem with using client/server as a foundation for network computing? It places too much of the responsibility and work of network computing in the application domain, leaving it up to the network manager and application developer to manually create and support the illusion of the intelligent network.

At best, client/server computing is merely a collection of ad hoc ideas and low-level tools for data exchanges and program calls across a network. Such a technology free-for-all can hardly provide the basis for ubiquitous network computing.

Today, the formalisms of network computing are where databases were before the relational model ushered in a disciplined approach to the concept of databases. Maybe what we need is a network computing version of Dr. Codd, the inventor of the relational database model, who can articulate a rational theoretical basis for an intelligent network.

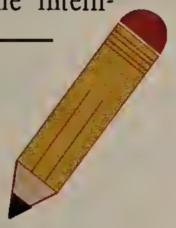
In the absence of any accepted theoretical basis for network computing, some vendors have taken up the slack. For example, relational database vendors such as Oracle Corp. and Sybase, Inc. continue to make great progress in distributing processes and data over a network.

Those of us who must build systems today can't afford to wait for the as yet nonexistent utopian network computing envisioned here. So, in the meantime, knock yourself out and make the best of client/server.

But let's not forget that the real goal should be true network computing, not client/server computing.

➾ Rostick is a managing consultant with Mentor Group, Inc., a Wayne, Pa., technology consulting firm specializing in information systems architecture. He can be reached at (215) 293-9117.

Letters



ATM coverage helps in planning

Are the trade journals publishing too much about Asynchronous Transfer Mode (June 21, page 40)? I doubt it. However, it may be All Too Much of the same information.

I believe ATM is one of the few buzzwords introduced during the past few years that will turn into a useful, cost-effective solution for users. As a telecommunications manager, my main question is *when* should I jump onto the ATM bandwagon? Like any new technology that ultimately becomes reality, if you start too early, you pay too much and suffer growing pains. If you start too late, you must abandon equipment that is relatively new. I'm sure John McQuillan — who made an excellent presentation on broadband technologies at the International Communications Association conference — would agree that the person who can accurately predict the precise moment to make the jump could make a fortune as a consultant.

My feeling is that ATM could resolve many of the difficult issues facing network managers. If a standards-based implementation occurs, ATM will remove many of the detailed design criteria needed to build networks.

The type of traffic on the net — voice, application data, file data, extremely large file transfers or video — will exist on the same network. This will relieve telecommunications engineers from building custom networks and tweaking them to work under varying conditions.

What interests me most in the area of ATM? Availability, cost and applicability of products. Even if you do not intend to construct an ATM network during the next few years, it is important to position your net to make the transition later.

By knowing where the technology is now, where it is going and how soon it could be cost-effective, I can develop a better plan for my particular network.

Jeff Hafer
Telecommunications manager
GPU Service Corp.
Reading, Pa.

Keeping readers up-to-date

I'm pleased that you asked for replies to questions regarding ATM that you posed in your editorial. My knowledge of ATM is the result of two very intense seminars: one by a recognized vendor and the other by a scientific unit that is developing the technology.

Let's look at ATM simplistically for a moment. One thing that popped out of both ATM seminars I attended is the technology's use of a fixed packet length as opposed to a variable packet length that most local-area networks use. This immediately indicates that ATM has consistency in the way it handles packets.

My background in electrical engineering and computer science mandates that the fewer variables a system has, the better it can provide an environment that is easy to measure, control and manage, and troubleshoot. Thus, my trained intuition tells me that ATM, because it has these attributes, is having and will continue to have a major impact on how we look at implementations of network technologies.

Therefore, I contend that the network implementor as well as the user must be kept well informed of both the basics and the progress being made in all networking technologies. It is very important that the enterprise within the system manager's and implementor's responsibility be continuously viewed globally and dynamically in terms of down-the-road technologies.

The effectiveness of tomorrow's system will be based on how cost-effective and efficient the migration path to that point has been planned and updated — and ATM should certainly be part of that plan.

ATM, or a technology very close to it, will serve as the platform for tomorrow's system. *Network World* is doing a very effective job of distributing up-to-date information regarding this subject — particularly since ATM, or a technology very close to ATM, will likely have to be accepted as a network system standard someday.

Keep up the good work, you're a fine publication!

Dave Rogers
Independent consultant
Pittsburgh

Keep the user in mind

It seems you are caught on the horns of a dilemma. While 99.44% of the population still uses ATM to mean automated teller machine, you are being urged to report on the forthcoming, network-freeing ATM — Asynchronous Transfer Mode. I avoid giving advice and wish you well. You can call me anytime to defend you from all those who are still angry because modems haven't died, as was predicted more than a decade ago.

It's ironic, maybe Freudian, that immediately below your editorial on the dilemma (June 21, page 40) is a Teletoon decrying the chasm between users and network providers. Could it be that the focus of having state-of-the-art networks is distracting network architects from their customers, the users?

In my seminars, I enjoy asking students how many of them have ever been asked what they are trying to achieve at their workstation, how they use it, and what would help them be more productive. No response. Not a scientific poll, but it suggests an area for improvement.

See Letters, *page 35*

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The great debate Public

Users line up on different sides of the issue

The ever-growing number of public network voice, data and video services keeps users debating whether public or private networking is the way to go.

Many large users have found it economical to shed the bulk of their voice traffic from private networks to such advanced public carrier services as virtual private networks, which use public-switched facilities to mimic the operation of a private network. Even the most hard-core private data networking types are now starting to examine public data net services such as frame relay and Switched Multimegabit Data Service. Advances in high-speed switched data services are also making the public net look attractive for supporting videoconferencing.

Just the same, some companies have kept voice traffic on private nets and would never consider trusting data to a public carrier. Some firms also find it more economical to let videoconferences ride over spare capacity on private data networks.

As the debate rages on, one thing is certain: The decision to go public or private is a difficult and highly personal one. Different companies want different public/private network mixes for various reasons.

However, the improved public net landscape makes it a strong competitor for even the most entrenched applications. The key is the strategic importance of the voice and data being transported.

Some institutions, notably in the finance industry, will likely never hand their data over to a public network. A minor blip could cost these firms billions of dollars in lost transactions.

Other companies are looking to move strategic data applications to the public network, buoyed by decreasing prices and a greater innate reliability. Even the temptation of private network alternatives, such as private frame relay, is not enough to woo leased-line networkers.

Interviews with network managers at three companies show that there is no right or wrong way to settle this debate. These managers explain in stories starting on page 31 how they dealt with this critical decision, given their unique corporate and network constraints.

Sam Shiels, SmithKline Beecham Corp.'s director of telecommunications, explains his decision to move as much traffic as possible onto the public network.

Occidental Petroleum Corp. currently has a large private T-1 network and is slowly migrating to public network options. "Public network options are at a level of reliability and efficiency as never before seen by end users," says Howard Hunter, corporate manager of telecommunications and computing at the firm. "It is a delicate balance to strike for any company."

For the First National Bank of Maryland, private networking has a completely different meaning. To the bank, private networking means installing your own physical facilities, and public networking is everything else, including leased lines. Don Rees, vice president of telecommunications at the bank, explains the benefits of owning your own network.

For Shiels, Hunter and Rees, the public/private tug-of-war is not easy to manage, and the decision for one application could be totally different for another.

These three managers made public/private networking decisions after carefully evaluating four key factors. Other managers can use these same factors as a starting point for making such a decision. They are:

- **Cost/Economy.** Sometimes the price benefits of using private facilities are too attractive to migrate to the public network; sometimes the reverse is true.
- **Reliability.** While private networkers argue that they can design their own networks to be virtually indestructible, the diversity and reliability of the public network is getting tough to match.
- **Availability.** The pressures to adopt new technologies for strategic reasons are strong for many companies in competitive environments, but the lack of availability in the public net can force end users to turn to private solutions. This is especially true in the international arena.
- **Control.** A lack of necessary tools to control public network offerings has kept many users private in the past. A slew of new public network management systems — for everything from managing network-based 800 automatic call distributors to Centrex station assignments — is changing this. But a bias toward direct customer premises-based, hands-on control keeps many users in the private networking environment.

Briere is president of TeleChoice, Inc., a Verona, N.J., consultancy specializing in strategic planning and analysis of intelligent networks, services and applications. He can be reached at (201) 239-0700 or on MCI Mail at DBRIERE (445-4690).

vs. Private

By Daniel Briere

Quest for virtual data

SmithKline Beecham Corp. yearns for a totally public net.

SmithKline Beecham Corp. is on a quest for a totally virtual private network, one that utilizes public voice and data services yet acts like a private net. To date, nearly 90% of SmithKline Beecham's voice traffic travels over a virtual private net, and the firm is looking forward to tapping the public network for virtual data services.

"Strategically, we're looking at dial-up options wherever possible," says Sam Shiels, director of telecommunications at the Philadelphia-based international health care firm. Where SmithKline Beecham has gone to public networking, it's done so because the service has the right price and is widely available, reliable and easily controlled.

There is a caveat, though. Shiels says reliability and control of public services is limited to areas where the services are ubiquitous and to carriers that offer sophisticated management options. Where emerging services are not ubiquitous and there are few sophisticated management options, the firm stays with private services.

SmithKline Beecham's network spans 160 countries. U.S. voice traffic is carried over Sprint Corp.'s Virtual Private Network, while international voice traffic is carried over Sprint's Global Virtual Private Network and International Virtual Private Network services. The exception to dial-up virtual net voice service is a private line that services the firm's 17 U.K. locations. The high volume of traffic between the U.S. and the U.K. gives the private line a more attractive cost.

Cost and the lack of needed technology in the carrier network are keeping the company in a private solution in other instances, especially for data applications. Currently, only 15% of the firm's data traffic is on the public net. "Data is still going to stay more private than public, mostly due to cost," Shiels says.

SmithKline Beecham's data strategy is keyed to moving a mix of traffic from separate leased-line networks to a single network of Cisco Systems, Inc. routers interconnected via private lines. That router network will support Digital Equipment Corp. Local Area Transport and DECnet traffic, as well as a mix of Ethernet and IBM Systems Network Architecture traffic. The company will use dial-up circuits to augment the leased-line bandwidth during peak traffic loads.

"Our Cisco routers are going to be able to track our usage and react to network requirements for more bandwidth," Shiels says. "If my response time needs to be one second or if the routers hit 80% capacity, the router will dial up a switched data connection on an [Integrated Services Digital Network Primary Rate Interface] circuit to add bandwidth." SmithKline Beecham currently uses a mix of Cable & Wireless North America, Inc. and Sprint private lines.

Shiels has just started looking at public network frame relay, but sees this alternative to leased lines as a logical extension of his present data strategy.

Continued on page 32

Own your own

First National Bank of Maryland stays as private as private can be.

For the First National Bank of Maryland, private networking is a way of life. The bank, a 1990 User Excellence Award winner, owns and operates a fiber-based network in Baltimore as well as a 250-mile 6-GHz microwave system running from Baltimore to the eastern shore of Maryland. These facilities are the preferred mode of communications internally, says Don Rees, vice president of client services in the bank's telecommunications division.

Right now, public services are not an option for most of the bank's applications, with the exception of voice. "The same factors that originally caused us to build a privately owned network would keep us from using public network services today," Rees says. "These are economy, reliability and maintainability. Public net services do not pass the economy litmus test."

The bank uses its private network to carry as much voice and data traffic as possible. Loading the private network up with traffic drives the per-minute cost of providing voice and data services down to the point where public services cannot compete.

In fact, the $1.7 million private microwave network paid for itself in only 18 months. This figure is based on construction and operation costs vs. what the bank would have paid for switched and leased-line services from carriers. The private net also provides heightened security for the bank's critical and sensitive data.

First National's strategy is to provide access to the private network in every local access and transport area where it has operations. Tail-end hop-off — the practice of riding the private network to the point closest to the destination — is used extensively to accomplish this goal.

If a caller in a bank office in one LATA wants to call a customer in another, the call will travel over the bank's private network to an egress point nearest the customer, where the call is turned over to the local telephone company for termination.

"Our strong point is delivering capacity," Rees says. "The economies work for us when we go down to the regional level, but not to the office level. The local public carriers can do this more cost-effectively than we can."

So internal voice traffic is carried via the private net where possible and over local carrier nets or AT&T's Software-Defined Network offering where not possible. Inbound 800 traffic is also handled by AT&T.

For data, First National is looking to simplify its network decision making. The bank's network traverses more than 150 sites." Our worst nightmare would be to have 20 sites using AT&T Software-Defined Data Network, 20 sites using switched 56K bit/sec lines, 70 sites using leased lines, and the rest of the sites using a mix of other services," Rees says.

The effort to manage such a hodgepodge of network services is more than it would ever be worth, he says. "It's better to have a single, networkwide approach to the backbone data technology or you spend your time managing the platforms and not the applications. We install services that work the best

Continued on page 33

Have private, will travel to public

Occidental Petroleum Corp. dismantling private T-1 net.

Occidental Petroleum Corp. of Los Angeles is at a crossroads concerning public and private networking. The company depends on private nets to keep costs down, reliability up and maintain strong control. Today, these legacy nets are threatened by more flexible and reliable public network alternatives.

The company has already shifted 80% of its voice traffic to a Sprint Corp. Virtual Private Network service, which uses public facilities to mimic the operation of a private network. The remaining 20% of voice traffic — all intracompany — as well as data and video traffic, remain on one of three private T-1 nets, largely because it's still in place. But data traffic growth is pushing Occidental to question the future of its private network.

"Directionally, voice has gone public and data is heading there," says Howard Hunter, corporate manager of telecommunications and computing. "As data has grown, it has pushed voice traffic onto the public net." This practice frees up private net bandwidth to handle the growth in data traffic.

Occidental operates three large domestic T-1 nets in a ring configuration, which looks largely like a three-leaf clover. All circuits are hubbed out of Occidental's Tulsa, Olka., mainframe computing and telecommunications facility, where Hunter is based. The T-1 circuits are provided by Sprint and WilTel, which allow for route diversity. There are a total of 13 major locations linked into the three rings. Some 250 smaller locations use lower speed data circuits to tie into the nearest major location, which provides

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SmithKline Beecham

Continued from page 31

"We may have two frame relay providers and have a [network-to-network interface] gateway between them," Shiels says. The gateway will overcome carriers' current spotty availability by enabling the firm to combine services offered in different regions by different carriers.

SHIELS

Shiels says he would seriously look to both Sprint and Cable & Wireless, his current private-line providers, for frame relay service.

SmithKline Beecham also uses public and private X.25 links to Europe. "Our decision to use private X.25 is more driven by extra bandwidth available on our private lines than anything else," Shiels says.

While it is not economical to recreate a worldwide X.25 network among all its countries of operation, SmithKline Beecham's private X.25 links to Europe offer an inexpensive complement to the public networks there. These private links interconnect public X.25 services in the various European countries. "The private lines are already installed, and the bandwidth is there to be used," Shiels says.

What will attract Shiels to dump more data traffic onto public circuits is commonsensical public data net pricing. Virtual private-line pricing — a usage-based pricing scheme that caps monthly public circuit usage fees at the leased-line rate over specific routes — is especially attractive to Shiels.

Of the three major interexchange carriers in the U.S., only MCI Communications Corp. has tariffed virtual private lines. By making the costs of usage-based services no higher than comparable private lines, end users can more readily switch without the fear of having budgets blown apart.

The company's video traffic is also carried over a hybrid of private and public facilities. Currently, 70% of video traffic is private, with the rest public. SmithKline Beecham has 13 videoconferencing rooms in the U.S. and U.K. using GPT Video Systems coder/decoders and Teleos Communications, Inc. inverse multiplexers.

"We have three dedicated 256K bit/sec links to the U.K. that carry some of our video traffic, but we can use our Teleos inverse multiplexers and switched data services to route some video over the public network, as well," Shiels says. The inverse multiplexers break a high-speed digital video feed into multiple smaller channels, such as 56K bit/sec, and shoot that traffic over switched data or even ISDN circuits. The inverse multiplexer at the receiving end reassembles the high-speed digital video feed.

"For the most part, the decision between the two is a simple break-even analysis," Shiels says. He estimates that for the U.K. traffic, the break-even point between a dial up and a leased line is somewhere around 60 to 70 hours per month.

Shiels says a big downside to using public network switched data for video is the cost of ISDN overseas. "When you ask a [post, telegraph and telephone administration] for the price of an ISDN call, they will quote you a voice rate."

But if a PRI is used for video or data, the PTT can detect that usage by checking the D signaling channel and charge the user the data rate, which can be four or more times the cost of a voice call.

Shiels says there are some instances where there are performance issues between one option and the other. "Our video rooms are being used back-to-back, and some people have complained about the time it takes to establish a video connection with switched services. However, we timed this and found it was only 15 seconds, which is less time than it takes the participants to get a cup of coffee and get seated, and about the same amount of time required for a private-line connection. So we should not see much of an issue between the two options. It's cost."

The movement to public networking is an evolution, not a revolution, Shiels says. "It takes time to rework network plans. We're looking at virtual data links over the public network, and it makes sense to go that way. But it cannot be done in a day." ◻

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Topic	Issue date
Alternative/ bypass carriers	Sept. 6
Routers	Sept. 27
Videoconferencing	Oct. 11
Remote LAN access	Oct. 25
T-1/T-3 multiplexers	Nov. 8
SMDS services	Nov. 29
Imaging	Dec. 6
Packet switches	Dec. 20

Occidental

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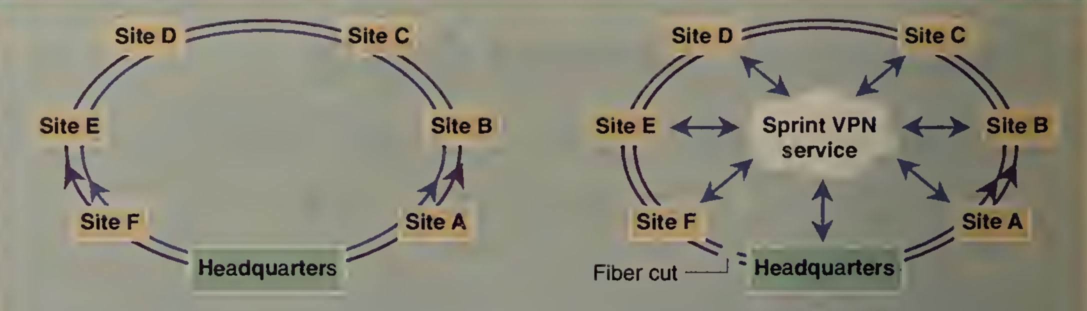
access to one of three rings.

Data generated by IBM Systems Network Architecture devices and interconnected local-area networks represents roughly 50% of the traffic on the private nets. The other half is small amounts of video traffic and intracompany voice, even though this traffic represents only 20% of the firm's overall voice traffic.

Occidental's private data network restoration plan



Half the traffic on Occidental Petroleum Corp.'s private T-1 net flows in a clockwise direction while the other half flows counterclockwise.

— = Voice and video (less than 50% of traffic)
— = Data (less than 50% of traffic)

If any of the T-1 circuits fails, intracompany voice and video is off-loaded to Sprint Corp.'s Virtual Private Network (VPN) and the freed up bandwidth is used to route all data in the functioning direction.

GRAPHIC BY SUSAN SLATER

SOURCE: TELECHOICE, INC., VERONA, N.J.

But the T-1 network's days are numbered, Hunter says. The SNA and LAN internetwork traffic is growing at a clip of at least 25% a year, and with data already taking up 50% of private net bandwidth, the company has to move more voice traffic onto the virtual net or expand private net bandwidth.

This need to dump voice traffic in favor of data is even more immediate if there is a cut on one side of any of the rings. Such an event forces the firm to jettison intracompany voice and video traffic to the virtual private net, leaving enough room for data to flow around the break over the freed up bandwidth (see graphic, this page).

"But that's the swing piece right there," Hunter says. "Once the data usage exceeds 50% of the overall traffic, there's not enough room for a redirection of traffic flows. We have to prioritize data traffic on the network to determine which data gets through over the now-limited capacity or throttle back the flow of data. Neither of these would be transparent to the user."

HUNTER

Occidental's options are threefold. The firm could install another set of T-1 circuits to complement the existing private network, thus doubling capacity and providing the advantage of adding a layer of mesh networking to the equation. Or it could install higher capacity circuits such as 45M bit/sec T-3s. Or the company could move the traffic to the public net and get rid of the private facilities altogether.

Based on economics and flexibility, Hunter believes that the latter choice will emerge the winner. He says public frame relay will be able to meet the existing and future requirements for high-speed, secure, cost-effective and reliable communications.

Occidental did consider building a private frame relay network that would use the public network to handle overflow traffic. "We just don't see it in the numbers," Hunter says. "Public frame relay is less expensive [than] any variation of private frame relay." The best private option was at least 10% to 20% more expensive than the corresponding public options.

The movement of data to the public net will be done in phases. Within five years, Hunter expects to see his firm with a near total public network solution for all domestic services.

"To some extent, this is a form of outsourcing," Hunter says. However, he cautioned that his firm would not see any savings from staff cutbacks. "We do not see this movement as a means to cut staff, but, rather, we're getting rid of a fixed expense [for equipment] that we have to change out every five years or so for new technologies. When that happens with private nets, we have to depreciate those costs over a [relatively] long term and that reduces our ability to embrace new technologies quickly. With a public network-based service, we can change services and providers quickly."

On the downside, Occidental is tying itself to the technology development schedules of the carriers, which tends to lag the industry deployment of advanced equipment. The carriers have the same problems as end users: having to write off equipment before it's time to keep up with the fast pace of new technology. "We view these basic services as a commodity, even frame relay," Hunter says. "If our provider is not keeping pace, we'll look to someone else."

Even the little video traffic there is today will be moving to the public network.

Not everything in Occidental's network is going public, however. For Occidental's 25-country international network, there are no reliable public network alternatives, Hunter says. In some cases, there is a major problem getting any network connectivity to the areas where Occidental's geologists go looking for oil.

"We've got everything in our network," Hunter says. "When we first enter a country, we use Peter Arnett-style hand-held units using [International Maritime Satellite Organization service] at $10 per minute. Once we put in a station or office, we'll go private with leased satellite channels. The reliability is not there with public services, period. And it will not be there for foreign operations for a long time."

So, in a lot of respects, Hunter will do whatever it takes to support the company's goals. He'll just make sure that whatever is chosen — private or public network facilities — is the most appropriate. "Our primary business is not data or information. It's petroleum and chemicals," Hunter says. "If you were talking about a new way to route those, then it would be a different matter." ◻

First National

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everywhere, at all sites."

First National's network supports a mixture of just about every form of data out there, including IBM Systems Network Architecture as well as Token-Ring and Ethernet local-area network traffic.

In most cases, the bank uses feeder circuits from branches into regional T-1 multiplexer sites that tap into the private network. There are two or three T-1 channels carved out on the backbone so that traffic can run in diverse directions to ensure reliability.

Extra bandwidth can be acquired using AT&T's Accunet Reserved private-line service, but this requires prior coordination, Rees says. Switched 56K bit/sec service can also be used but only in a contingency environment. If First National's data center in Baltimore were to go down, the bank would activate Accunet Reserved and switched 56K bit/sec services to link branches to a Sungard Recovery Services, Inc. disaster recovery center in Philadelphia.

The result is a highly resilient data network. "An outage for us would take the Great Earthquake of the East Coast," Rees trumpets.

Still, Rees is willing to look at some public network options for his vital data streams. He is extremely interested in Bell Atlantic Corp.'s Switched Multimegabit Data Service (SMDS), which is being rolled out now in some of his regions.

WALTER CALAHAN

Donald Rees of First National

He is also observing the development of cellular data as an alternative to the wireline last mile. "The economy could be there, and the flexibility would be critical for applications, such as rapid deployment of a branch."

Rees will still take some convincing though. In the past, the bank has been turned off by some carriers' inability to move fast enough on new technologies. "They could not move the elephant fast enough," he says. However, Rees says he has seen substantial changes in local carrier responsiveness in the past few years.

Indeed, First National was the first customer in Maryland to launch Bell Atlantic's advanced intelligent network-based switch redirect service. This service allows all or some of a customer's calls to be rerouted at the local carrier's central office to an alternate location instead of using clumsy and expensive call-forwarding arrangements for each line.

Rees is also tempted by carrier services to move video traffic off the private network. Currently, the bank has two T-3 channels on the private network to carry video between its operations in Maryland and Deleware.

First National is also setting up a number of new video trials. Working with Bell Atlantic, First National will test PictureTel Corp. coder/decoders over private network facilities to its newly acquired York Bank and Trust in York, Penn.

"Our [Ascom] Timeplex [Inc.] equipment lets us allocate our bandwidth as needed so we can run 112K, 384K or 768K bit/sec video," Rees says. Because the private fiber and microwave nets do not stretch to Pennsylvania, the Ascom Timeplex equipment will connect into a wide range of circuits leased from a mix of carriers, including GTE Corp., Metropolitan Fiber Systems, Inc. and WilTel.

Totally public network services are on the horizon for video, however. Rees envisions using off-net videoconferencing for training and for bringing remote resources into the bank. "Public network services have to be an element in our bag of tricks for video to make full use of the equipment," Rees says. "Our video requirements will extend beyond our company, necessitating public services."

This includes international traffic. Once switched 64K bit/sec services are more readily available in Europe, Rees will look to incorporate them into his networking scheme. First National is a subsidiary of Allied Irish Bank. "We'll need video for high-level executive conferences between headquarters [in Ireland] and our various U.S. offices," he says.

Despite looking into public net services for specific applications, Rees says there is still no comparing private to public net services. He simply advices other users to look at what they can get from carriers, look at what they can do on their own and then look at the crossovers to see which camp the traffic should fall into.

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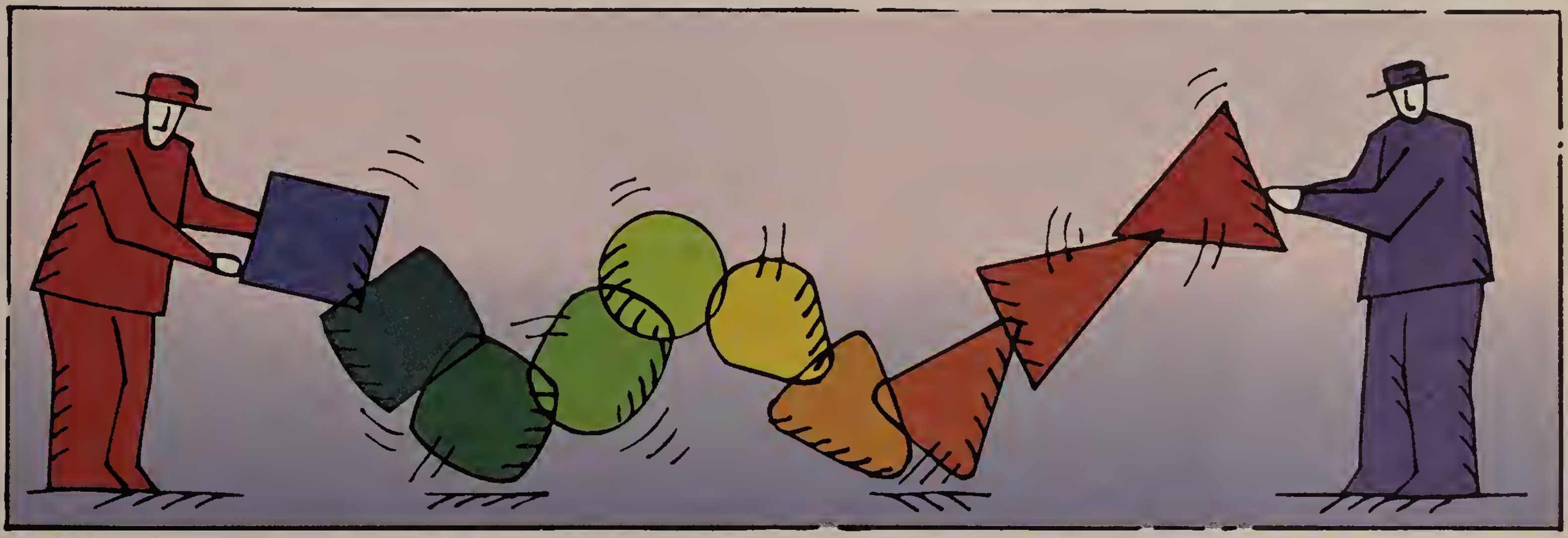

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Help desk

Continued from page 2

there a valid argument for choosing one platform over another? Both currently support 16M bit/sec over unshielded twisted pair.

Bruce Griffis, Stamford, Conn.

Jodi Mardesich, an analyst with The Burton Group, replies: The choice should be based on four key areas — manageability, functionality, scalability and price.

If you want to manage your Token-Ring Network, upgrading to intelligent hubs makes sense because the IBM 8228 is unmanageable. IBM would probably recommend upgrading to the 8230, which can be managed from IBM's LAN Network Manager using Common Management Information Protocol over 802.2 Logical Link Control 2.

But if you have a multivendor environment and want to support other protocols besides NETBIOS or Systems Network Architecture on your network, I'd recommend looking at intelligent hubs from other vendors because the IBM 8230 doesn't support the Simple Network Management Protocol, the de facto network management protocol.

SynOptics Communications, Inc. token-ring hubs can be managed via SNMP over both Internet Protocol and Novell, Inc.'s Internetwork Packet Exchange (IPX) transport protocol. Most hub vendors provide SNMP management of some sort. In fact, IBM resells Chipcom Corp.'s ONline System Concentrator, a multisegment hub that supports Ethernet, token ring and Fiber Distributed Data Interface as well as SNMP management.

SynOptics offers extra functionality, as well. For instance, SynOptics stackable token-ring hubs can detect when a 4M bit/sec node is plugged into a 16M bit/sec ring and automatically isolate the node to prevent it from bringing down the entire ring. SynOptics and IBM both offer active per-port retiming, which allows you to use lower grade Category 3 unshielded twisted-pair wiring for token-ring connectivity.

If your network is token ring only, and you like IBM's network management, then IBM 8230s might be a good solution for you. But if you also have Ethernet or FDDI networks, SynOptics hubs are a better choice because in addition to pure token-ring hubs, SynOptics offers multifunction hubs that support Ethernet, token ring and FDDI. These technologies can be integrated via routing modules.

The entry cost for SynOptics token-ring hubs is lower, but, in general, pricing for IBM hubs is comparable to SynOptics hubs.

Letters

Continued from page 29

Should you cover ATM? You bet. Just keep it in perspective. The crucial issue is productivity. The question to keep in mind is: What has the highest hourly network cost? The answer: The user. If not, your network may have more promise than substance.

Gordon Hill
President
Independent Telecommunications Support, Inc.
St. Petersburg, Fla.

Enough time to prepare

I took an interest in Edwin Spievack's column "Users may have to pay the price for area code conversion" (June 14, page 36). He points out that once area codes and the three-digit central office prefixes within them become interchangeable, the leading digit 1 must be used to distinguish one from the other. Those three-digit combinations immediately following the initial 1 are defined as area codes. Spievack correctly points out that this plan no longer allows the dialing of toll calls within the same area code using the pattern 1 + seven digits since that would be ambiguous. Tolls within the home area will, therefore, need to be dialed as either seven digits or as 1 + 10 digits.

Spievack makes a case that one of these two solutions — the seven-digit one — should be disallowed. His argument is that customer premises switches whose designers or administrators are not prepared for this change now "know" which three-digit combinations are toll prefixes and which are local, and that these switches will not be capable of filtering out toll calls originating from ports, which should be toll-restricted.

The pattern of forcing subscribers to dial a 1 for toll calls is called toll alerting. It is a holdover from mechanical, step-by-step central office switches that needed a digit to indicate when to switch the remaining rotary digits to a toll trunk. It is my understanding that when the North American plan of area codes and direct distance dialing was first laid out in the 1940s, it was never anticipated that a 1 would be used for anything except to distinguish area codes from prefixes.

The intent was that any subscriber visiting anywhere in the country would be able to know *exactly* how to dial every call on the first try without asking someone for help. In other words, toll alerting is a corruption of the original intent of dialing 1. I'm sure some AT&T or Bell Communications Research historians among the readership can give a better picture.

I recently compiled a list of 51 area codes that, according to telephone company announcements, will contain (or are being readied to contain) interchangeable prefixes. I then noted the method that the local telephone companies in each area code require to place a toll call within that area code.

Of the 51 area codes on the list, 24 use (or have announced that they will use) the toll alerting dialing plan Spievack prefers, 21 use (or have announced that they will use) the seven-digit plan anticipated by the North American numbering scheme, and the remaining six are too small to have toll calls within them. Spievack is winning but not by much.

Interchangeable area codes have been in use in North America since 1979. The time has long passed by which standard customer premises switches should have been equipped with routing tables that network administrators can use to restrict outgoing toll calls.

Gregory Monti
Technical projects manager
National Public Radio
Washington, D.C.

Out of the closet

Due to my transcription error, the number of the EIA/TIA standard I referenced in my column on wiring closets (May 17, page 36) was incorrect. The correct standard number is EIA/TIA 569, and its full title is Commercial Building Standard for Telecommunications Pathways and Spaces. My apologies to the Telecommunications Industry Association and to anyone who was inconvenienced by the error.

Copies of the EIA/TIA 569 standard can be obtained by calling Global Engineering Documents of Washington, D.C. at (800) 854-7179. The cost is $87 plus shipping, handling and sales tax.

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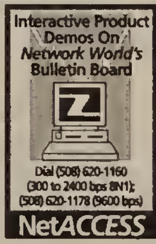
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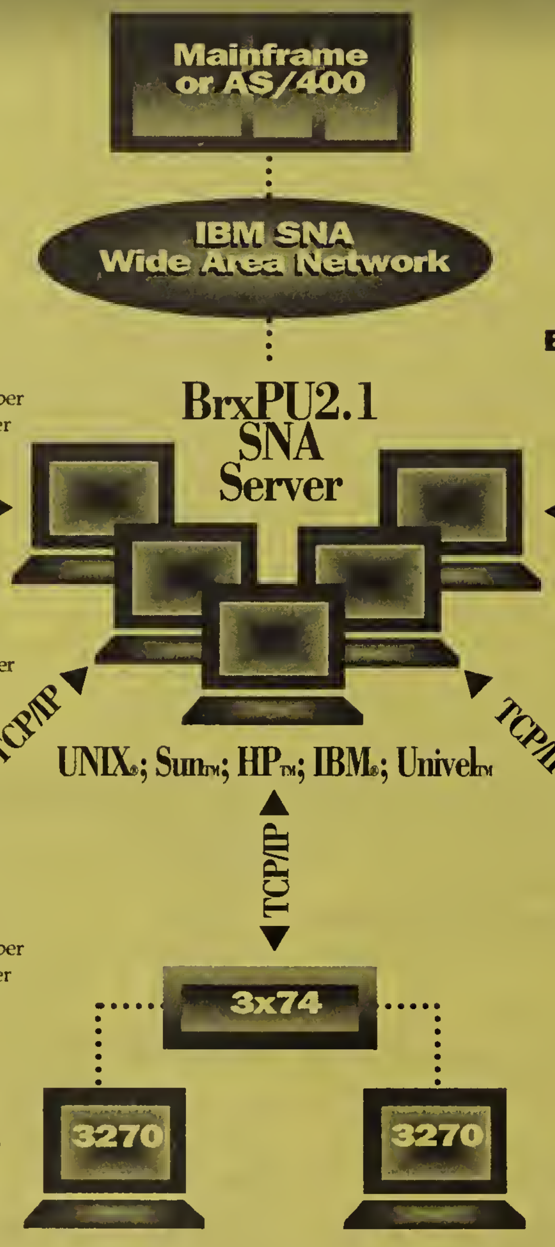

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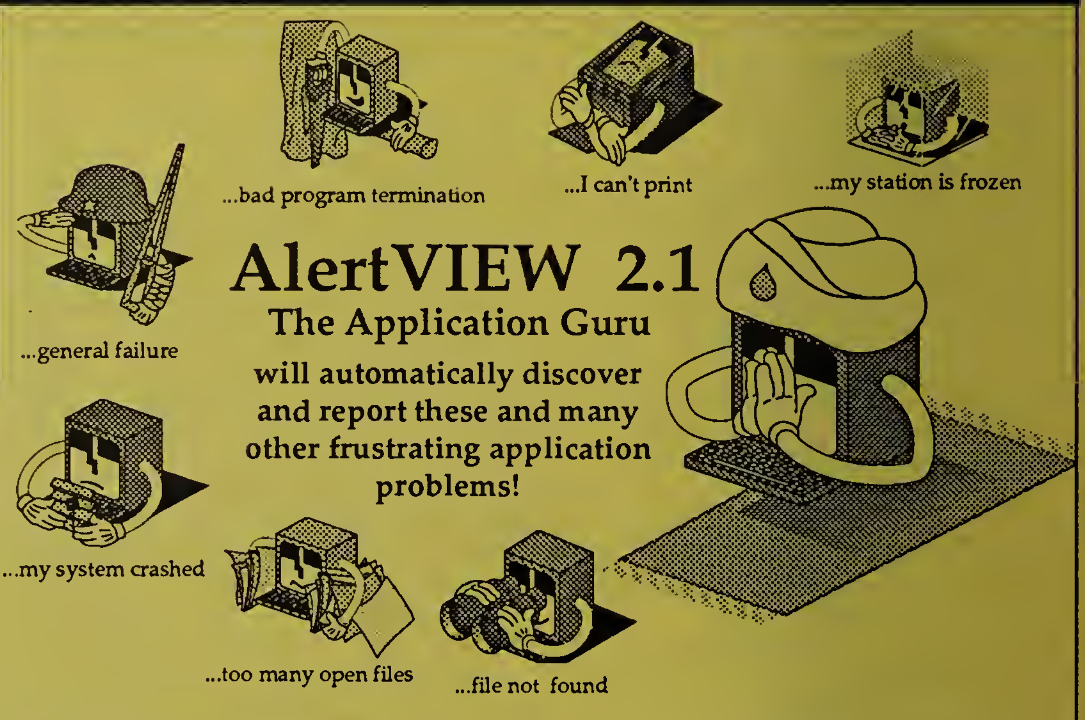

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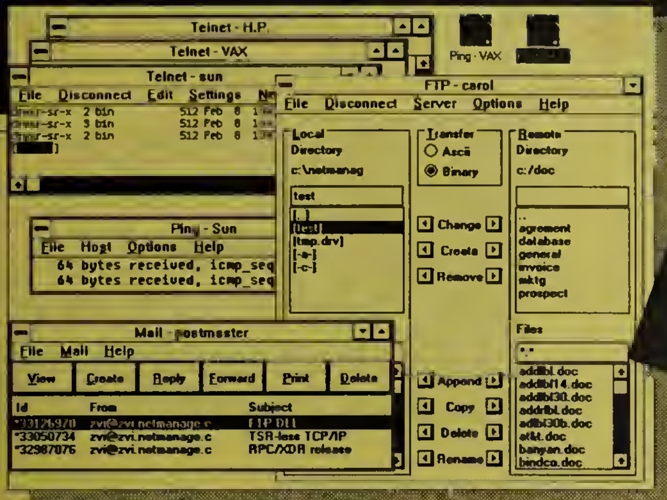

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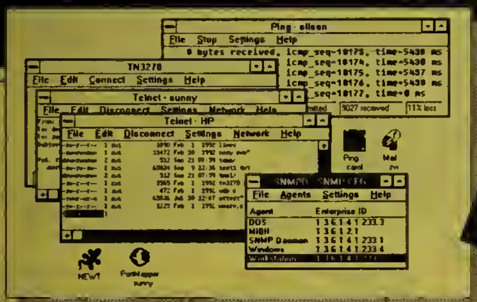

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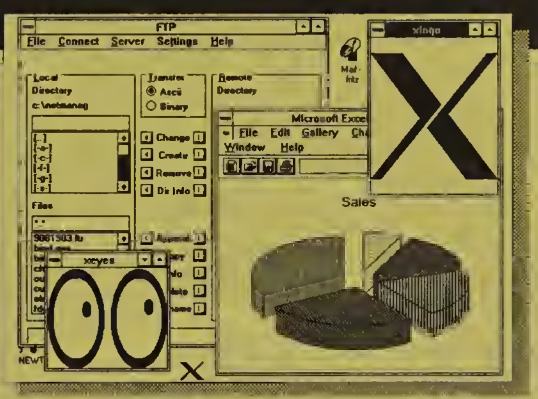

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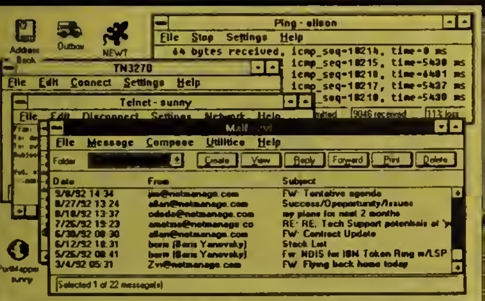

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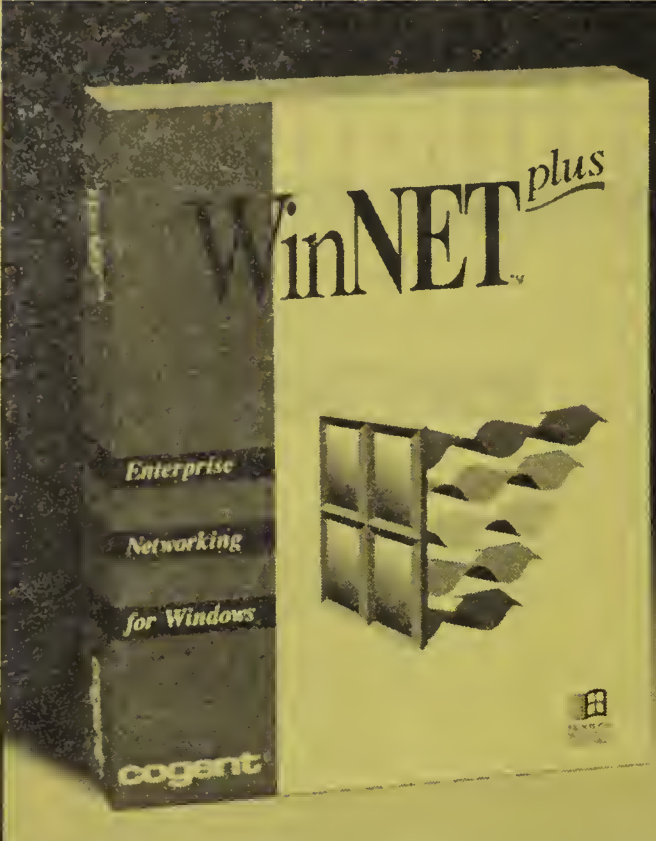

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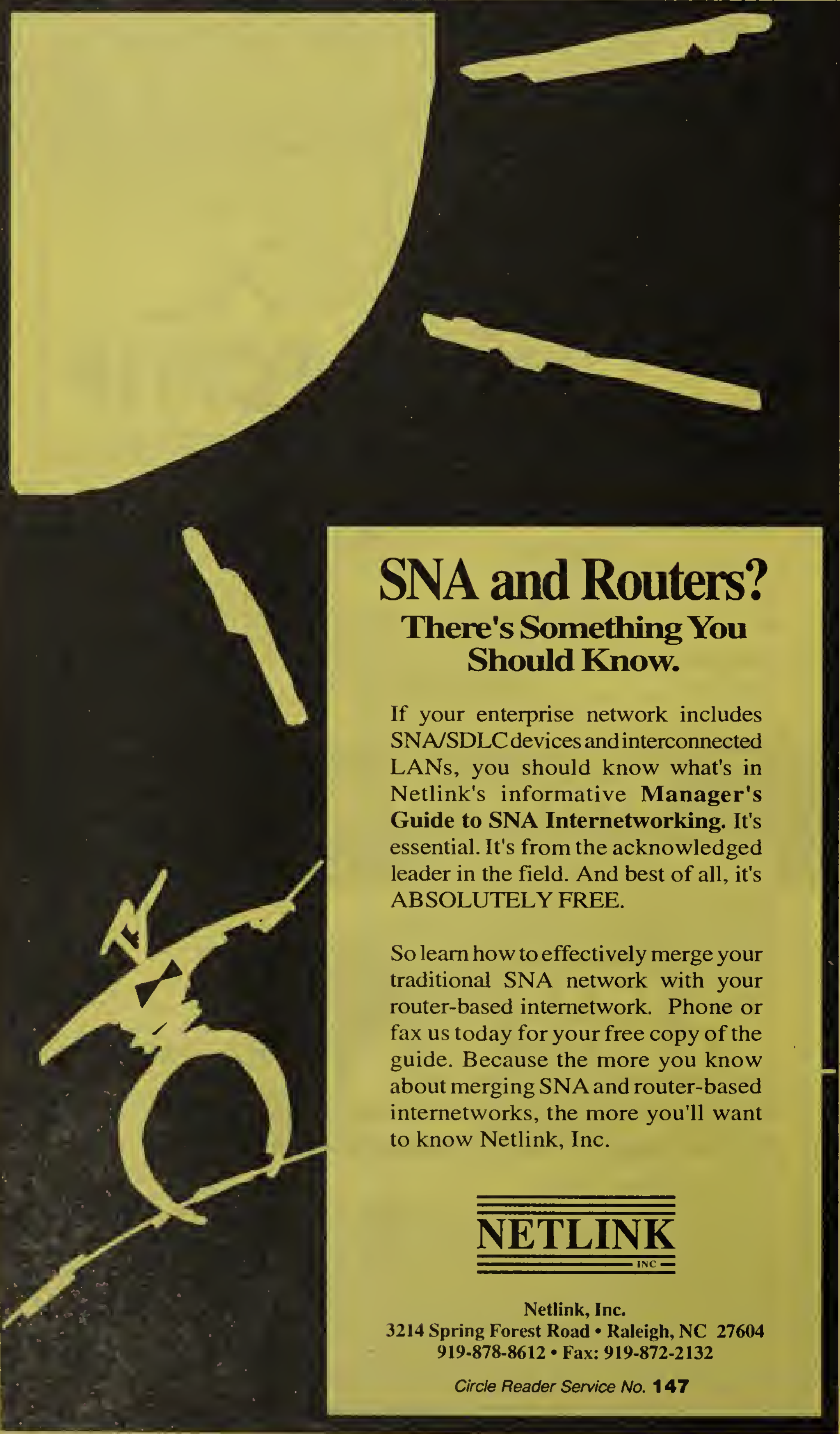

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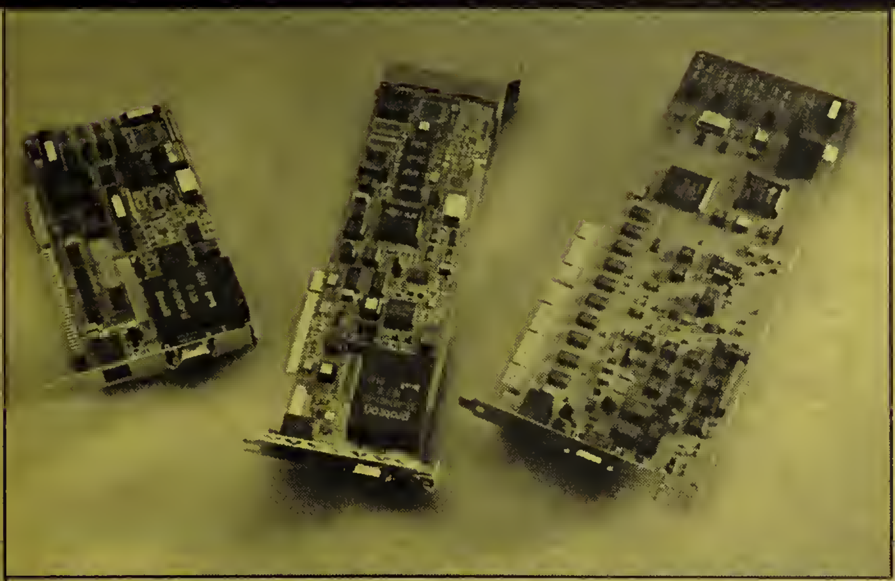

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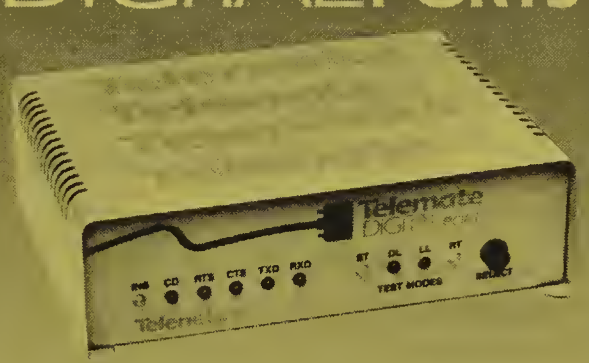

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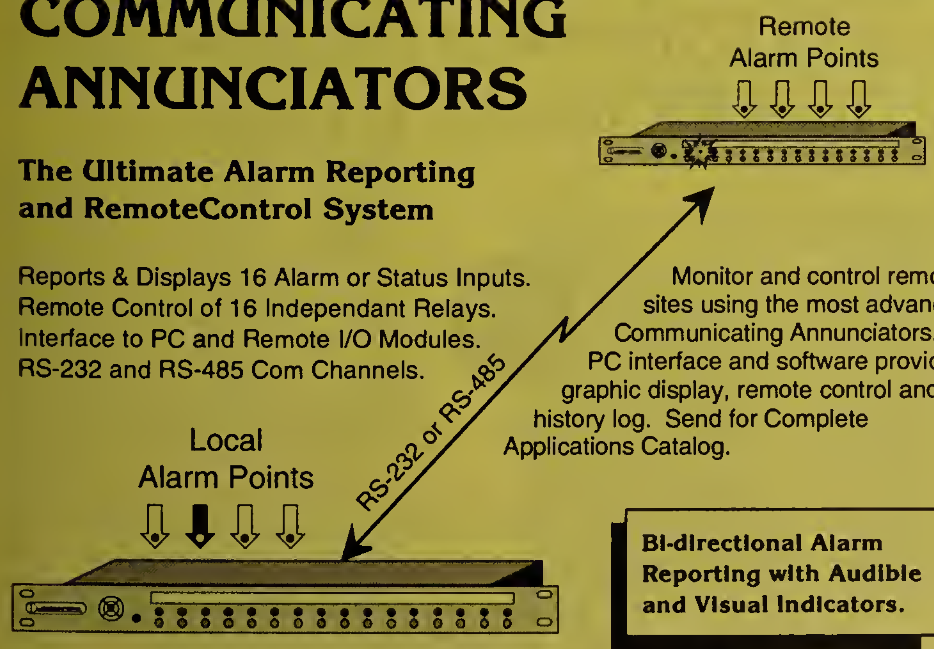

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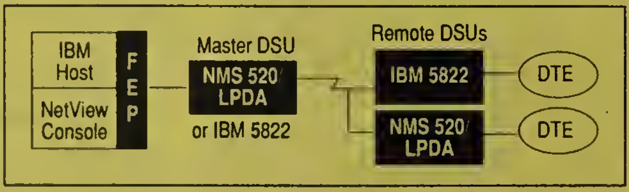

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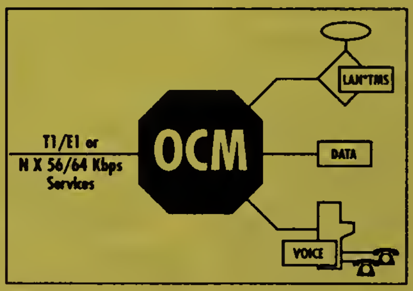

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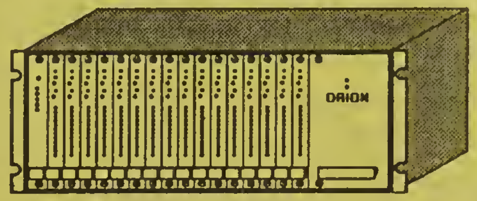

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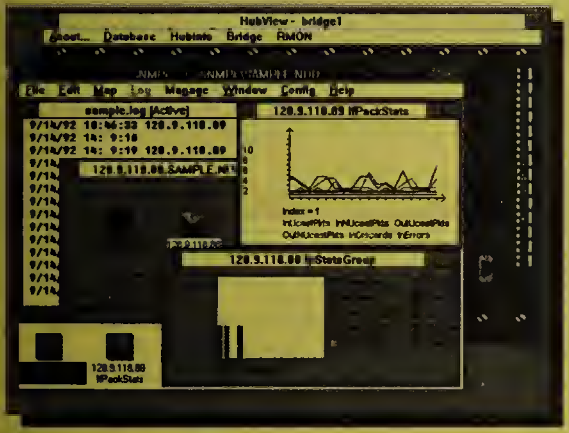
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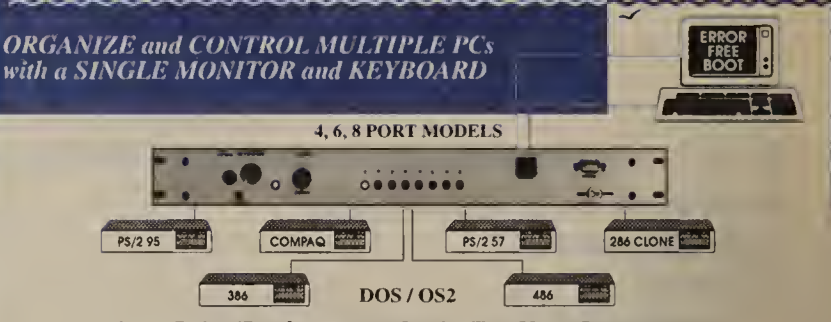

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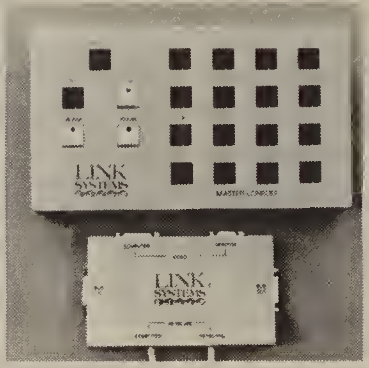

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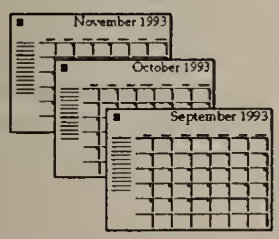

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Fresh

Continued from page 1

the Washington, D.C. law firm Levine, Lapaga & Bloch, said about one-third of the roughly 200 Tariff 12 customers are "testing the waters more or less seriously."

James Blaszak, an attorney with the Washington, D.C.-based law firm Gardner, Carton & Douglas, agreed that the market has been active and AT&T rivals very aggressive of late. Blaszak would not reveal how many of the firm's custom network users are examining their options under Fresh Look, but said "a good number of our clients have been in the marketplace."

Kevin Brauer, president of Sprint's Business Market Group, said the carrier has responded to requests for proposal from 40 Tariff 12 users and declined to bid on a number of others.

Tony Russo, director of strategic marketing initiatives for MCI, said the carrier has received RFPs from over 80 Tariff 12 users.

"The economy is hurting and every company is feeling the squeeze," said Russo. "[Network managers] feel strongly that it's their corporate obligation to look for ways to cut costs, and lower rates from a competitor is one way to do that."

While Levine estimated that 15 to 25 Tariff 12 users will sign contracts with MCI or Sprint, most sources were reluctant to guess how many customers will leave AT&T during Fresh Look.

For its part, AT&T would not comment on any estimates or offer any of its own. "We certainly expected MCI and Sprint to go after most of our Tariff 12 customers," said an AT&T spokesman. "It's a very competitive marketplace. And we're doing everything within our power to keep these customers."

AT&T said some of its prized custom net customers have already decided to stay put (see graphic, this page), adding that "many others" will remain with the carrier.

One of those customers holding fast is Carl Valentino, director of customer support services for Avis, Inc.. Valentino said Avis put its Tariff 12 network up for bid by the Big Three and made a decision to stay with AT&T. keeping its top priorities — reliability, service and cost, in that order — in mind.

While the bids were roughly equal from a pricing standpoint, the rental car giant said it believes AT&T's network is more reliable than MCI's or Sprint's. "We are very happy with the reliability and the quality of service we receive from AT&T," said Valentino, who cut his company's network costs by 10% through the bidding process.

But things worked out differently for Boise Cascade Corp. and James River Corp. — two high-profile Tariff 12 customers.

Two weeks ago, Boise Cascade awarded MCI a five-year, $30 million contract for a custom net including 800 service, which will be used by field sales personnel to submit orders, as well as a 150-site Virtual Network and data services. The move will help the firm cut costs by 28% a year.

Waiving the Fresh Look option

Users that have decided to stick with existing or revamped Tariff 12 nets:

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- Avis, Inc.
- Cargill, Inc.
- Delta Air Lines, Inc.
- General Electric Co.
- Hancock Financial Services
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- Kemper Corp.
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SOURCE: AT&T, BASKING RIDGE, N.J.
GRAPHIC BY SUSAN J. CHAMPENY

The Boise, Idaho-based paper products maker contracted with AT&T for a custom network under Tariff 12 in 1990. But last year, with 800 portability around the corner and the firm already spending millions of dollars on 800 service, Ray Roarke, manager of information systems and telecommunications for the company, asked AT&T and MCI to bid on the network.

"We went into the comparative analysis with a strong bias toward AT&T because they had treated us well and we were happy," Roarke said. "But we made the decision to go to MCI because they had lower 800 prices."

MCI said it will this week announce that James River, a Richmond, Va., paper products firm, has left AT&T for a custom network arrangement with MCI but would not discuss terms of the deal. A net manager at James River confirmed that the company is moving to MCI but would not say why.

Courtaulds Coatings, Inc. of Louisville, Ky., a big AT&T SDN user, recently switched to MCI because the carrier was more flexible than AT&T when it came to structuring a bulk discount plan.

"The Tariff 12 package AT&T offered us when we put the network out to bid had too many strings attached," said Vicky Vuba, computer services manager at the firm. "It required a minimum amount of usage for each service and contained verbiage, such as limits on network size, that we didn't like because our business is always changing."

The MCI package will save the firm 10% to 15%, compared to its earlier deal with AT&T.

Instead of asking carriers to bid on its Tariff

See **Fresh**, *page 46*

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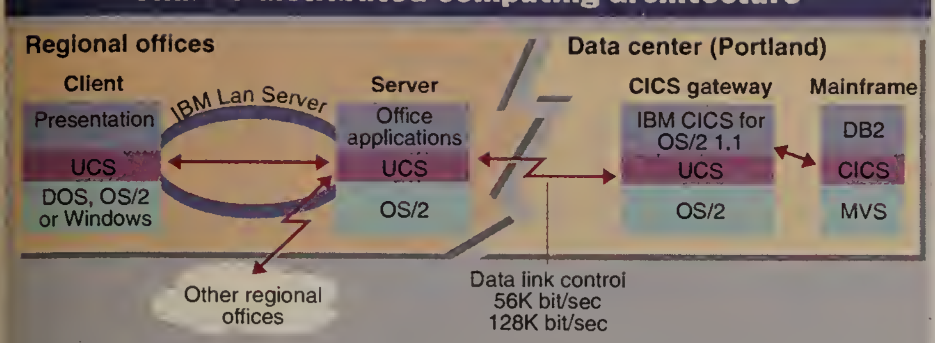
Unum's distributed computing architecture



Unum Corp.'s peer-to-peer messaging system, the Unum Communications System (UCS), gives workers access to programs anywhere on Unum's global network, including IBM CICS transaction processing applications on the mainframe.

GRAPHIC BY SUSAN SLATER SOURCE: UNUM CORP., PORTLAND, MAINE

Middleware helps firm

Continued from page 1

essentially functions as a distributed operating system, linking applications across different network protocols and operating systems, and providing higher level services, such as naming, session management and network management.

UCS enables applications to communicate by exchanging structured interprogram messages in a peer-to-peer fashion.

In contrast, most client/server applications today employ remote procedure calls, which require a tighter coupling between applications. "We believe peer-to-peer messaging is more flexible than RPCs and is critical when integrating applications on an enterprise level," King said.

One of the biggest challenges in implementing a distributed application architecture is figuring out how to manage it, King said.

With few, if any, products available for such tasks, Unum has built a management system on top of Pipes Platform called the UCS Monitor.

The UCS Monitor, which runs on OS/2 workstations, allows systems administrators to click on a network node and determine whether it is a client or server, what operating system it runs on and the status of the applications it supports.

It also allows administrators to start and stop applications, check error codes and find out who to contact if there is a problem with the software that cannot be fixed remotely.

"We can't be flying out to Los Angeles to restart an application server," said King, who added that Unum is patenting the UCS Monitor technology.

LAYING THE GROUNDWORK

Unum last year laid the groundwork for distributing applications when it replaced 3270 terminals in more than 50 offices worldwide with IBM Token-Ring networks supporting OS/2 application servers and DOS, Windows or OS/2 client workstations.

Client workstations, which run little more than a graphical user interface, access office productivity applications, such as spreadsheets and word processing packages, stored on one or more application servers on the Token-Ring LANs. All other business applications, such as customer service-, sales- and product-specific applications, currently run on two IBM mainframes here running CICS/MVS and are accessed via terminal emulation.

But UCS, which is currently being deployed across eight regional claims processing offices and the headquarters site, promises to liberate Unum workers from their 3270 screens forever.

Unum is currently building a gateway between the application servers and the IBM CICS mainframes that will enable workers to access and update transaction processing applications using graphical front ends instead of 3270 screens.

The gateway will consist of one or more OS/2 machines in Unum's data center running IBM's CICS for OS/2 1.1 software (see graphic, this page).

UPCOMING RELEASES

The first application to be deployed across the UCS architecture, due out early in 1994, is a claims processing application that will support all of Unum's insurance products.

OS/2 workstation users will be able to read and write information on the mainframe by accessing a CICS kernel on the nearest LAN application server. That server, which provides minimal CICS functions, such as printing and data formatting, will kick off transactions on the mainframe via the CICS-OS/2 gateway.

Another application in the works will enable users to write and print new policy contracts and booklets for any Unum insurance product. Prototypes of this application have reduced policy turnaround time from months to days, King said.

Unum's goal is to provide a two-second or less response time for all 3270-equivalent transactions, King said. However, some transactions may take longer than that since the new claims processing application consolidates information and fields that were previously portrayed on a half-dozen or more 3270 screens, King said.

Applications built on top of UCS will give users immediate access to information, improve customer service and cut the time it takes to issue new policies and print documents. It also provides greater flexbility to reengineer business processes to respond to new competitive challanges, King said.

"UCS gives us more flexible systems that provide workers with better information more quickly in a format that is easier to interpret," King said. ◪

ATM barrage

Continued from page 1

byte fixed-length cells and the demands of traditional Systems Network Architecture traffic.

Analysts said the switch will be used as a backbone device, linking ATM-equipped devices and providing links to ATM WAN services as well as portals into traditional time-division multiplexed SNA domains.

The switch will offer users the ability to combine multiple protocols, such as SNA and the Transmission Control Protocol/Internet Protocol, on a single broadband path, analysts said.

"It will let users build a generic network where they can run everything, including alphabet soup, over one, integrated network," said Todd Dagres, vice president of data communications at The Yankee Group, a consultancy in Boston.

Dagres added that the new switch will not obviate the need for circuit switches or multiplexers, but rather work in conjunction with those devices.

HUB SWITCH

The company is also expected to offer a homegrown ATM switch module for its 8250 intelligent LAN hub, IBM's version of Chipcom Corp.'s ONline System Concentrator.

Dubbed Prizma, the 8250 module will have a capacity of 2G to 5G bit/sec and fit inside existing 8250s. Future 8250 models will incorporate the switch fabric in the hub backplane.

Dave Passmore, vice president and service director of the Gartner Group, Inc. consultancy in Stamford, Conn., said adding ATM to traditional LAN environments will make it possible to mix and match traffic. "Users will be able to allocate/de-allocate bandwidth, find out the status of the network and determine the best routes for data to take," Passmore said.

Because of the existing IBM-Chipcom relationship, sources said technology developed for the 8250 will more than likely end up in Chipcom's ONline hub.

While not confirming the hub announcement next week, David Fowler, vice president of marketing for Chipcom said, "Our relationship with IBM remains strong, and we are jointly working on ATM technology, the first fruits of which will likely be employed within the hub."

IBM will also announce ATM interfaces for a variety of strategic platforms, including the RS/6000, Application System/400, 6611 router, 3174 cluster controllers and 3745 front-end processors. The interfaces will support ATM at 25M, 100M and 155M bit/sec via fiber, although IBM is developing copper implementations for those interfaces, as well.

In addition, IBM will roll out PC-based ATM adapter cards that support 25M bit/sec copper wire links. IBM proposed this "low-speed" ATM technology to the ATM Forum last February as a way to support ATM links to the desktop over ordinary telephone wire.

TAKEN TOGETHER

Taken as a whole, the announcement will help users build a matrix of interconnected systems, LANs routers and switches capable of handling large multimedia, voice and data applications.

Because of the Autobahn's support for variable-length frames, users can control the speed and bandwidth of the networks created using the new switch, providing a migration path for SNA and current LAN devices, according to Passmore.

"No one is going to be able to go from 9.6K bit/sec to T-3 overnight," he said. "IBM will help that migration with this architecture.

"The trick will be for IBM to convince users they need ATM on their wide-area networks," Passmore said. "ATM on LANs makes sense, but users have increasingly let the carriers handle the wide-area communications, so bringing it all back to the user will take some doing."

These products, part of IBM's Broadband Network Architecture (see story, this page) will open up new vistas for IBM. "We see this as a whole new business opportunity for IBM," said Rick Malone, a principal with the Vertical Systems Group consultancy in Dedham, Mass. "IBM doesn't have very many high-speed networks today so it'll be interesting to see how they plan to migrate those low-speed users."

Others agreed.

"IBM has some great technology and now must figure out how to best get it out to market," said Stan Schatt, senior industry analyst at InfoCorp Computer Intelligence in La Jolla, Calif.

"IBM has been conducting focus groups with many of its users over the last few months to get a feel for where and how they will deploy ATM technology in their networks."

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IBM's firsts in new architecture

The new IBM Asynchronous Transfer Mode (ATM) products will herald the arrival of the company's Broadband Network Architecture that IBM first revealed last month (*NW*, June 14, page 8).

The architecture defines how the company will make it possible to support multiple protocols, including Transmission Control Protocol/Internet Protocol, Network Basic I/O System and those used in Systems Network Architecture on high-speed nets composed of ATM and other technologies.

IBM said the ATM products are the first in a series of products that will flesh out the architecture and help users blur the lines between local- and wide-area networks.

Other products could include smaller ATM switches, more ATM interfaces and offerings that take advantage of other high-speed technologies such as Switched Multimegabit Data Service.

> **"We'll provide a mechanism to control high-speed communication," IBM said.**

IBM executives said the company will roll out products that help provide bandwidth management, route optimization, and flow control for high-speed LANs and WANs. "We'll provide a mechanism to control high-speed communication," IBM said.

The company offered little detail on product specifics but said most of the products will appear in the next 12 to 18 months.

The Broadband Network Architecture comprises the lower levels of IBM's far-reaching master networking plan known as the networking blueprint, which it announced in 1992.

The blueprint includes other IBM technologies, such as Multiprotocol Transport Networking, which will let any application run over a variety of data transports.

⊸ BY MICHAEL COONEY

Fresh

Continued from page 44

12 network, Unisys Corp. has asked for bids on a new, redesigned and reengineered corporate data network. It is bidding out its voice traffic separately.

Unisys is looking for the carrier that can offer it the most advanced network service with the best pricing, availability and features. "We also want the service to be based on the most advanced transmission and switching systems," said Bill Holt, director of network engineering for Unisys. "We're looking at ATM and SONET."

Unisys expects to make a decision on bids from the Big Three in the very near future as the July 29 deadline looms large.

A network manager at a large regional bank with a Tariff 12 network said it has not yet decided whether to stay with AT&T, which has rebid its original Tariff 12 rates, or move to MCI, which has a competitively priced proposal. "We're trying to get through negotiations quickly because we're running out of time," said the manager, who requested anonymity.

Although a mass exodus of AT&T Tariff 12 customers seems unlikely, a number of Tariff 12 users have threatened a move in order to win concessions from AT&T during Fresh Look.

Case in point: Unum Life Insurance Co. in Portland, Maine. Unum signed a multiyear Tariff 12 contract with AT&T just over a year ago, but decided to put its network out for rebid.

"[AT&T and MCI] came back with very attractive offers," said Dick Curry, vice president of data and communications management at Unum.

Curry said the company looks for a 10% to 20% price differential to switch service and equipment providers, but MCI did not make that range. AT&T dropped its rates by 10%. "We decided to stay with AT&T because they had done a good job in previous years," he said.

Cargill, Inc., another Tariff 12 customer, used the threat of a move to convince AT&T to drop its private-line rates. "Our rates for data services weren't where we wanted them," said Reuben Lantto, a network manager for Cargill. "We told AT&T [it would have] to give us the rates we want or we would open the gates and rebid everything."

Cargill convinced AT&T to refile the firm's Tariff 12 arrangement with rates for services like 64K bit/sec, fractional T-1 and T-1 that are 30% lower than in the past. Lantto expects to save $600,000 a year from the change.

Levine said it took AT&T a while to come around on prices.

"AT&T has become more aggressive in the last few months when it comes to meeting prices," he said. "The big winners are the users who have a middle-sized or [large] deal and make it clear to AT&T they're going to leave if they don't get price breaks in the 10% to 20% range."

Calendaring

Continued from page 1

the XAPIA put the calendaring issue on its agenda following an impromptu meeting on the subject that he assembled at the recent Electronic Messaging '93 conference.

Pete Donaghy, manager of enterprise information systems at GM Hughes Electronics, which has about 3,000 group calendar users, also backed XAPIA's effort.

"The time to address this issue is now rather than waiting until it becomes a problem and trying to repair it then," Donaghy said. "You can see another E-mail situation coming about where we have disparate calendaring systems that don't talk to each other."

It has not yet been determined whether XAPIA, an industry group that has established both X.400 and messaging APIs, will oversee the API effort. The group may be considered appropriate because most calendaring systems are or will be integrated with messaging systems.

Group calendaring systems allow users to scan on-line personal calendars for mutually available free times, notify users of proposed meeting times and automatically update their calendars if meetings are confirmed.

"If we could have calendar exchanges, we could migrate a lot of our [host-based] OfficeVision users to the LAN," Mizumori said. The lack of interoperability among LAN-based calendaring systems means the company might risk losing the consistent corporatewide access the host system provides, he said.

GM Hughes Electronics is trying to establish a corporate calendaring system standard as it moves away from host-based electronic mail to Lotus Development Corp.'s cc:Mail. But Donaghy acknowledged that it is possible that more than one calendaring system will survive and that interoperability will be needed.

Interoperability will also be crucial for enabling users at different companies to schedule meetings with each other, a trend Donaghy foresees.

Among the calendar API options already on the table is an IBM proposal being considered by the Vendor Independent Messaging (VIM) consortium. IBM's Vendor Independent Calendaring specification would calendar-enable various applications in much the same way the VIM specification is designed to mail enable applications.

The Message Handling Service (MHS) Alliance has also established a committee dedicated to creating an API for interoperability between calendaring systems that use MHS as a mail transport, said John Rizzi, chairman of the organization and vice president of strategic marketing at ON Technology, Inc.

Calendaring vendors, including Microsoft Corp., Microsystems Software, Inc. and Powercore, Inc., said they would welcome the development of a standard API by XAPIA.

"All of the scheduling vendors want interoperability," said Clair Hector, product manager for Schedule+ at Microsoft. "The XAPIA is a good industry forum to handle it."

John Hitchins, president of Powercore, based in Manteno, Ill., said standards could eliminate the need for his company to build to multiple vendors' E-mail and calendaring systems.

Hitchins said he would first like to see a simple store-and-forward messaging format developed for calendaring systems to exchange data. Then he would like a common API so that calendaring systems could fully interoperate with each other.

For more information on the Aug. 23 XAPIA calendaring meeting, call (408) 446-9158.

Novell

Continued from page 1

now —with our work with the NCSC, NetWare and our partners — is that you will be able to certify products that work in the network environment."

According to sources, Novell and its partners will seek to obtain a C2 rating from the NCSC for their products, which will be packaged and evaluated as a complete network system.

C2, as defined by the Defense Department's so-called "Red Book" of trusted systems evaluation guidelines, primarily certifies that a system offers a defined level of discretionary access control, as well as user identification and passwords.

Novell and its partners will also seek an E2 rating under Europe's so-called Information Technology Security Evaluation Criteria guidelines, roughly equivalent to C2 in the U.S.

C2 is not the highest rating possible under the NCSC guidelines, which range from a high of A to a low of D. Verdix Corp.'s Multi-Level Secure/LAN, the first net product to pass muster at the NCSC in 1991, obtained B2 certification for the product's audit features, as well as mandatory and discretionary access controls.

Larry Chapman, general manager of the Verdix secure products division, said, "It took five years to get the MLS/LAN product through." The company also has an Internet Protocol router undergoing NCSC Red Book evaluation.

B2 is the highest rating before the A level, where "complete mathematical certainty" in the security mechanisms of a trusted system must be proven, analysts said.

The NSA's NCSC began evaluating information systems for security levels nearly 10 years ago, but the program's guidelines were originally developed for certification of operating systems and stand-alone computers.

Within the last few years, the NSA, as well as the National Institute of Standards and Technology, has sought to tackle the more complex assignment of defining security criteria in nets.

"The C2 networked criteria is going to use Red Book to target component pieces of the architecture," explained Joel Sachs, vice president of business development at Arca Systems, Inc., a security consultancy based in San Jose, Calif.

The NCSC will judge whether to certify the system as a whole, Sachs pointed out.

Cordant, Inc., formerly Centel Federal Systems in Reston, Va., expects to be named as technical program management partner by Novell, as well as other vendors yet to be named, for the Trusted Network Computing Environment project.

By making the security-related announcement in New York —rather than Washington, D.C. —Novell and its partners seem eager to emphasize the usefulness of such a rating to the commercial world.

Senior Writer Skip MacAskill contributed to this story.

Simpact

Continued from page 6

links, said Victor Forgetta, vice president of marketing for Simpact's connectivity products and services division.

That means users are roped into employing the proprietary communications protocols associated with those machines, he said.

Since Freeway supports the widely used TCP/IP, it can be used with virtually any LAN-attached processor, he said.

Freeway is also programmable, meaning users can configure the system to filter out only the data they need when it receives information from the remote host.

"We free them up to buy what's best for their application, as opposed to the one that supports the protocol they need," Forgetta said.

In addition, Freeway is programmable, he said, meaning users can configure the system to filter out only the data they need when it receives information from the remote host.

Freeway includes a tool kit that enables users to set parameters for filtering data throughout the system.

"That's key because you don't want to put a lot of traffic on the LAN that's unnecessary," he said.

Freeway will support IBM Systems Network Architecture protocols and Token-Ring LANs in the future, Forgetta said.

Prices for Freeway start at $12,500.

Simpact: (619) 565-1865.

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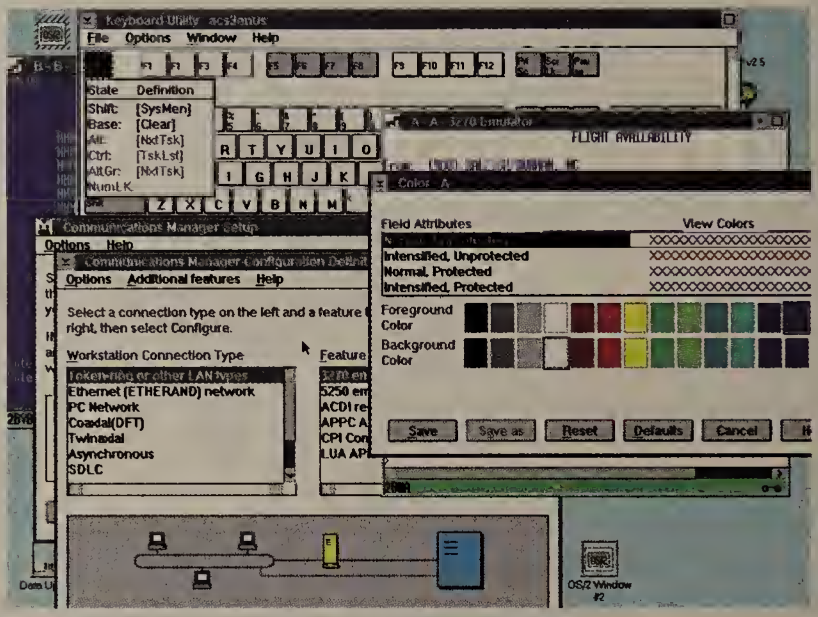

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